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NOAA Data Report ERL CMDL-5



ECC OZONESONDE OBSERVATIONS AT SOUTH POLE, ANTARCTICA, DURING 1989

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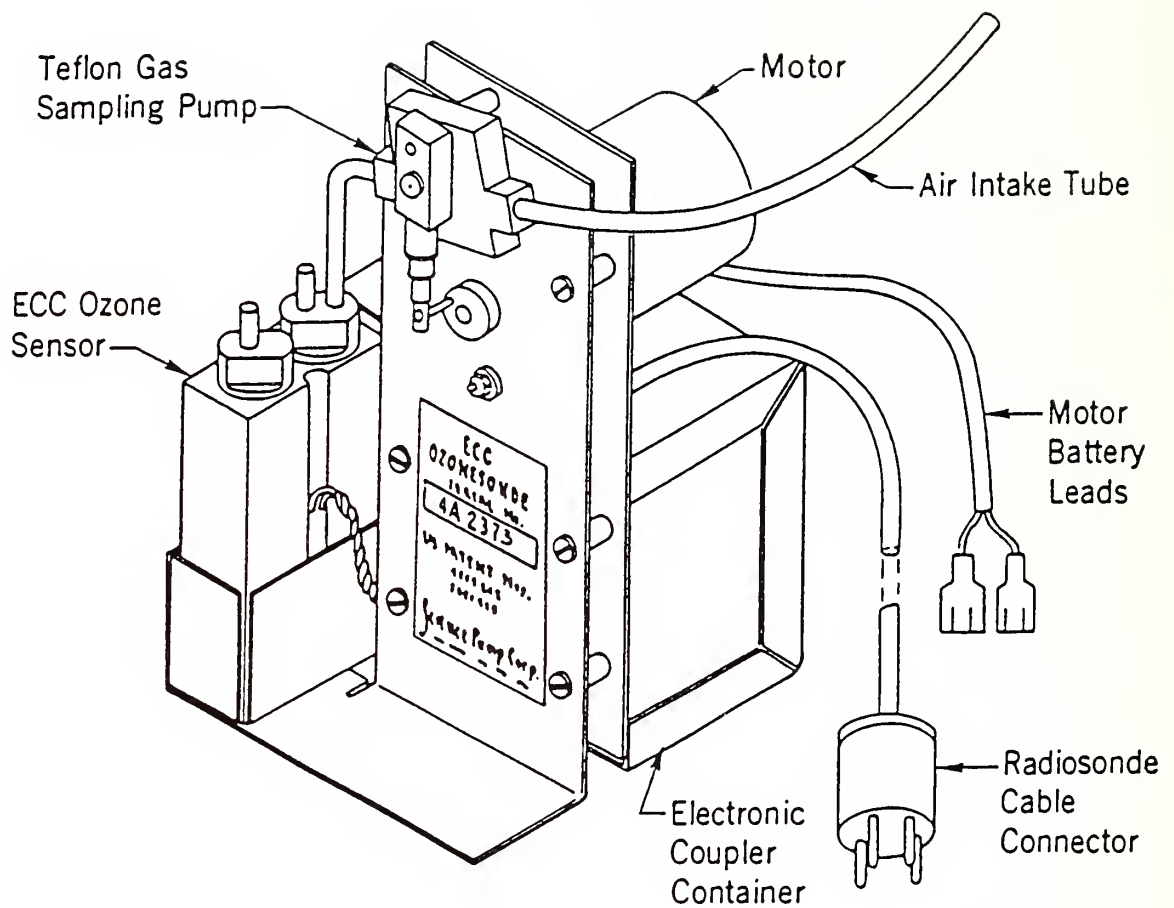
**Joseph O. Fletcher
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MODEL 4A BALLOONBORNE
ELECTROCHEMICAL CONCENTRATION CELL (ECC)
OZONESONDE

ECC OZONESONDE OBSERVATIONS AT SOUTH POLE, ANTARCTICA, DURING 1989

W. D. Komhyr, E. A. Crozer, J. A. Lathrop, and M. A. Winey

ABSTRACT. Atmospheric ozone vertical distributions, air temperatures, and wind speed and wind direction data are presented for 60 balloon electrochemical concentration cell (ECC) ozonesonde soundings made at South Pole, Antarctica, in 1989.

1. INTRODUCTION

Measurements of the vertical distribution of atmospheric ozone with electrochemical concentration cell (ECC) ozonesondes were begun by the NOAA Air Resources Laboratory at South Pole in 1986 (Komhyr et al., 1987; 1988a) to study the ozone decrease indicated in Antarctica in recent years by Dobson spectrophotometer (Farman et al., 1985; Komhyr et al., 1986; Chubachi and Kajiura, 1986) and satellite (Stolarski et al., 1986) total ozone observations. The measurements were continued in 1987 (Komhyr et al., 1988b; 1989a), in 1988 (Komhyr et al., 1989b), and in 1989. Similar measurements were first made at several stations in Antarctica (Byrd, Hallett, South Pole, Wilkes) by the Air Resources Laboratory during 1962-1966 (Komhyr and Grass, 1968). Instruments used then were Regener chemiluminescent ozonesondes (Regener, 1964) and predecessors of ECC ozonesondes, i.e., carbon-iodine (C-I) sondes (Komhyr, 1964). ECC ozonesonde observations were also made at South Pole during 1967-1971 (Komhyr et al., 1989c). During 1988 and 1989, ECC ozonesondes were flown at Mirny, Antarctica (66.3°S, 93.0°E), in a cooperative program involving staff of the U.S.S.R. Central Aerological Observatory, Dolgoprudy, Moscow Region (Komhyr et al., 1989d; 1990).

The 1989 observations at South Pole were made year-round at a frequency of one sounding a week, except more often during September-November, the time of formation and persistence in recent years of the "ozone hole" over South Pole (see List of Soundings after Section 9). Pressure, altitude, ozone, temperature, dewpoint, humidity, potential temperature, and wind data are presented at minute intervals for each of the soundings, together with vertical profile plots of ozone, air temperature, and wind data.

2. INSTRUMENTATION

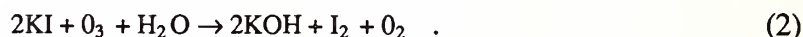
The ECC ozonesonde (Komhyr, 1969; Komhyr and Harris, 1971), shown facing page 1, is composed of an ECC ozone sensor, a battery-powered Teflon gas-sampling pump, and an electronic coupler and sequencing switch that connects the ozone sensor to a 1680-MHz radiosonde for data telemetry. During balloon ascent, data transmitted are air pressure, air temperature, relative humidity, ozone, and ozone "zero" and "calibrate" signals. The data sequencing switch is operated by the pump motor through a gearing arrangement, enabling pump motor speed to be monitored. The instrument measures $7.6 \times 7.9 \times 13.3$ cm and weighs 390 g. During flight, it is encased in a weatherproof, polystyrene flight box whose outside dimensions are $19.1 \times 19.1 \times 25.4$ cm. Total weight of the flight package is 650 g, including batteries.

The ECC ozone sensor is made of two bright-platinum electrodes immersed in potassium iodide solutions of different concentrations contained in separate cathode and anode chambers. The chambers are linked together with an ion bridge that, in addition to providing an ion pathway, retards mixing of the cathode and anode electrolytes and thereby preserves their concentra-

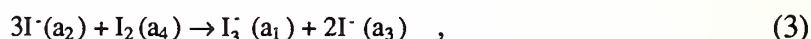
tions. The electrolytes also contain potassium bromide and a buffer whose concentrations in each half-cell are the same. Driving electromotive force E for the cell is approximately 0.13 V at 25°C, and is defined by

$$E \approx - \frac{0.0591}{2} \log \frac{(a_1)_{I_3^-} (a_3)_{I^-}^2}{(a_4)_{I_2} (a_2)_{I^-}^3} , \quad (1)$$

where a_1 , a_2 are the activities, respectively, of the triiodide (I_3^-) and iodide (I^-) within the anode half-cell, and a_3 , a_4 are the activities, respectively, of the iodide and iodine (I_2) within the cathode half-cell. When ozone in air enters the sensor, I_2 is formed in the cathode half-cell according to the relation



The cell converts the iodine to iodide in accordance with the overall cell reaction



and the ozone concentration in the sampled air is derived from

$$p_3 = 4.307 \times 10^{-3} i T_b t , \quad (4)$$

where p_3 is the ozone partial pressure in micromillibars, i is the sensor current due to ozone in microamperes, T_b is the sonde box temperature in kelvins (approximately equal to the sonde pump temperature), and t is the time in seconds taken by the ozonesonde gas sampling pump to force 100 ml of air through the sensor. To achieve approximately 1:1 stoichiometry in the conversion by the sensor of O_3 to I_2 , cathode sensing solution concentration employed is 1% KI.

Within the ECC sonde, air is forced through the sensor by means of a nonreactive pump fabricated from TFE Teflon impregnated with glass fibers. The Model 4A sondes flown at South Pole are equipped with piston-cylinder-type pumps having a circular cross section. Grooves cut externally into the pump cylinders are fitted with rubber O-rings that press against thin, flexible portions of the cylinders to maintain an air-tight seal between the cylinder and piston. Pumping efficiency for such pumps depends on ambient air pressure, the pump dead volume, and the pump head (the back pressure exerted on the pump by the sensor cathode electrolyte). All soundings at South Pole were made using 3.0 cm³ of cathode electrolyte. Recent flight simulations in an environmental chamber, using sensors filled with 3.0 cm³ cathode sensing solution, yielded pump efficiencies that were near 1.00 at ambient air pressures greater than 200 mb, but that decreased to 0.99, 0.98, 0.96, 0.94, 0.92, 0.89, and 0.82 at pressures of 100, 50, 20, 10, 7, 5, and 3 mb, respectively.

3. FLIGHT PROCEDURES

The ECC ozonesondes were prepared for use and flown in accordance with instructions provided in NOAA Technical Memorandum ERL ARL-149 (Komhyr, 1986). Helium-filled, 538-m³ (19,000-ft³) plastic balloons were the flight vehicles for the soundings. These balloons attain a pressure altitude of 8-10 mb. Smaller rubber balloons were used occasionally when surface winds (>5 m s⁻¹) precluded successful launchings of the plastic balloons.

Soundings were made successfully during all months of the year. Useful data were not obtained from six soundings because of balloons bursting at low altitude, radiosonde signal loss, and ozonesonde instrument malfunction.

4. DATA PROCESSING

Ozone, air pressure, air temperature, and humidity data were extracted from each 1680-MHz radiosonde flight record at 1-min intervals and were processed by computer in accordance with instructions in NOAA Technical Memorandum ERL ARL-149 (Komhyr, 1986). Measured ozone amounts were corrected for pump efficiency decrease with altitude (see Figure J3 of Technical Memorandum ERL ARL-149), and for pump motor speed variations (which occurred rarely).

For a sounding terminating at a pressure altitude between 27 and 7.8 mb, ECC sonde total ozone was deduced from integration of the ozone profile extended above flight altitude to 1 mb along a constant ozone mixing ratio line, the constant mixing ratio being that measured at the maximum altitude attained by the balloon. When an independent measure of total ozone was available (e.g., from ozone measurement with a Dobson spectrophotometer), a correction factor for the sonde data was determined from a ratio of the two total ozone values. All sonde ozone values were then corrected by that factor.

For eight soundings terminating at a pressure altitude of less than 7.8 mb, ECC sonde total ozone and the ozone correction factor were determined as described in the previous paragraph but with the assumption of flight termination at 7.8 mb. (Integration of ozone above flight termination altitudes beginning at pressures less than 7.8 mb was not resorted to since the reliability of the sonde data decreases with altitude at pressures less than 7.8 mb.)

Estimates of total ozone from the ECC sonde data were not made for flights terminating at pressure altitudes greater than 27 mb.

5. OZONE MEASUREMENT UNCERTAINTIES

Ozone measurement accuracy, relative to the Vigroux (1953) ozone absorption coefficient scale, is estimated to be $\pm 10\%$ in the troposphere and $\pm 5\%$ in the stratosphere to 10 mb (Hilsenrath et al., 1986). Under optimum conditions, ozone measurement precision (at the 95% confidence interval level) is estimated to be $\pm 5\%$ in the troposphere, and 2-3% in the stratosphere to 10 mb (Komhyr et al., 1985). In routine field operations, a degradation in measurement precision by up to a factor of 2 might be expected.

Comparison ECC sonde and Dobson spectrophotometer total ozone data were available for 24 of the 60 soundings. The normalization (sonde data correction) factor derived from the comparisons was 0.977 ± 0.053 (1σ). For 525 soundings made by NOAA during 1985-1987, over a wide range of operating conditions from the tropics to polar regions, the mean ECC sonde-Dobson spectrophotometer total ozone normalization factor was 1.009 ± 0.054 (1σ) (Komhyr et al., 1989e).

Dobson spectrophotometers are operated on the Vigroux (1953) ozone absorption coefficient scale. Dobson instrument 82, last calibrated August 1985 and installed for operation at South Pole in November 1985, was recalibrated in Boulder relative to World Primary Standard

Dobson Instrument 83 (Komhyr et al., 1989f) in May 1990. On the basis of the recalibration, final corrections of 1.05 ± 0.25 (1σ) % were applied to January 1-November 27 South Pole Dobson spectrophotometer total ozone data. On November 28, 1989, Dobson instrument 82 was replaced at South Pole with Dobson instrument 80. Standard lamp tests performed on the instrument in December yielded erratic data, causing an uncertainty of about 2.2% to be associated with the December 1989 South Pole Dobson instrument total ozone values.

Processing of the South Pole Dobson spectrophotometer total ozone data was performed in a routine manner (Komhyr, 1980), using standard Dobson instrument ozone absorption coefficients applicable at -44°C . Because the absorption coefficients for AD or CD wavelengths decrease with temperature at a rate of $0.13\%/^{\circ}\text{C}$, the effective coefficients applicable at South Pole during winter months, when stratospheric temperatures reach -90°C , are smaller than the standard coefficients by up to about 5%. Since an inverse relationship exists between total ozone and ozone absorption coefficients, total ozone amounts computed from the Dobson spectrophotometer observations made at the very cold stratospheric temperatures should be increased. Dobson spectrophotometer total ozone observations were, however, not available for normalization of South Pole ECC sonde data for most soundings made during May through mid October. Ozone profile data for two soundings made July 17 and July 20 were normalized after increasing Dobson spectrophotometer total ozone amounts by 4%.

Radiosonde baroswitches were incorrectly set for the ozone soundings of September 7 and October 1. Pressures for these flights were adjusted during final data processing to yield ozone and air temperature profiles that were deemed to be consistent with similar data from previous and subsequent soundings.

6. DATA PRESENTATION

Tabular data for each ozone sounding are preceded by plots of ozone partial pressures and air temperatures (solid curves), humidity data (circles), and wind data (if available). In the wind plots, wind speed is denoted by the length of the horizontal bars, and the wind direction by the bar centers.

Tabular data presented at 1-min intervals include air pressure in millibars; geopotential altitude in meters; ozone partial pressure, ozone mixing ratio, ozone density, and total ozone, in nanobars, parts per million by volume, micrograms per cubic meter (γ), and atm-cm, respectively; air temperature and dewpoint temperature in degrees Celsius; relative humidity in percent; potential temperature in kelvins; and wind speed and direction in meters per second and degrees, respectively. Preceding the data listing for each sounding are station surface meteorological data applicable to the time of ozonesonde release, relevant ozone and radiosonde instrument calibration data, and total ozone and the sonde data correction factor, if available (see Section 4).

Following the data listing, ozone partial pressures are given for standard Umkehr layers.

Finally, ozone partial pressures, air temperature, and wind data are presented for mandatory pressure levels and significant ozone levels, coded in a WMO World Ozone Data Centre (WODC) format [see "Ozone Data for the World" (Atmospheric Environment Service, 1981) or NOAA Technical memorandum ERL ARL-149 (Komhyr, 1986)].

7. DATA ARCHIVING

ECC ozonesonde data, coded in the WODC format described in Section 6, are available from

World Ozone Data Centre
Atmospheric Environment Service
4905 Dufferin Street
Downsview, Ontario
Canada M3H5T4

One-minute-interval data, on IBM PC-compatible diskettes or CYBER computer magnetic tape, are available upon request from

NOAA Air Resources Laboratory
R/E/AR4
Boulder, Colorado 80303
Attn: Ozone Program

8. ACKNOWLEDGMENTS

Logistics and general support for the Dobson spectrophotometer and the ECC ozonesonde ozone observing programs at South Pole were provided by the National Science Foundation.

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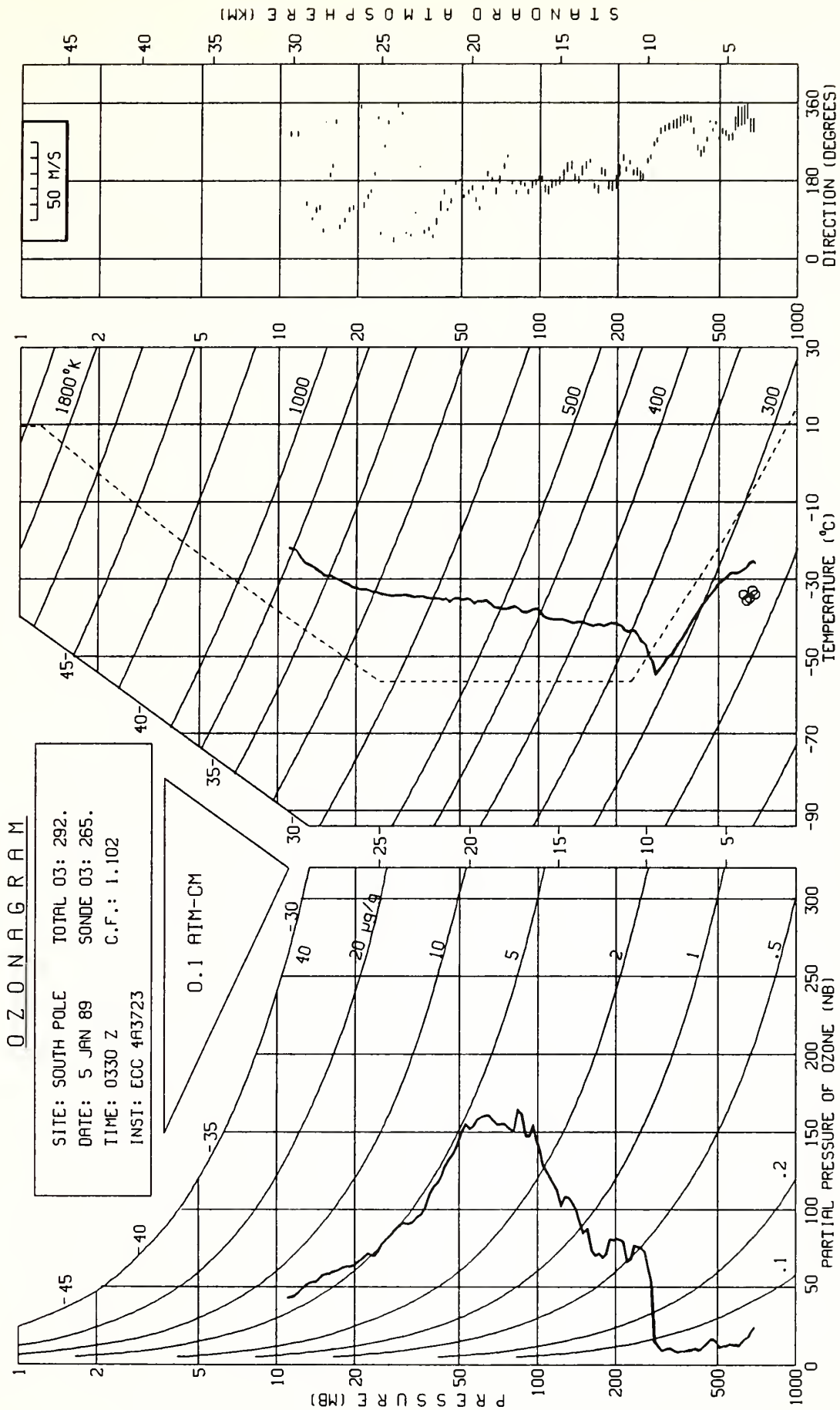
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LIST OF SOUNDINGS

Station: South Pole, Antarctica
90.0°S, 24.8°W, elevation 2810 m

<u>Release Date</u>	<u>Time (Z)</u>	<u>Release Date</u>	<u>Time (Z)</u>
05 Jan 89	0330	20 Aug 89	0218
14 Jan 89	0419	31 Aug 89	0247
19 Jan 89	0255	07 Sep 89	0239
26 Jan 89	0204	13 Sep 89	0150
03 Feb 89	0313	16 Sep 89	0248
09 Feb 89	0249	18 Sep 89	0508
19 Feb 89	0037	22 Sep 89	0238
23 Feb 89	0316	24 Sep 89	0306
02 Mar 89	0318	27 Sep 89	0240
09 Mar 89	0343	28 Sep 89	0958
16 Mar 89	0253	29 Sep 89	0233
25 Mar 89	0304	01 Oct 89	0248
02 Apr 89	0312	04 Oct 89	0245
21 Apr 89	0255	06 Oct 89	0305
27 Apr 89	0328	09 Oct 89	0326
06 May 89	0246	11 Oct 89	0322
11 May 89	0254	13 Oct 89	0256
18 May 89	0243	17 Oct 89	0247
27 May 89	0303	21 Oct 89	0300
04 Jun 89	0728	25 Oct 89	0245
10 Jun 89	0239	01 Nov 89	0303
17 Jun 89	0640	03 Nov 89	0249
25 Jun 89	0352	10 Nov 89	0348
30 Jun 89	0253	17 Nov 89	0332
11 Jul 89	0252	24 Nov 89	0347
17 Jul 89	0240	30 Nov 89	0402
20 Jul 89	0236	07 Dec 89	0335
27 Jul 89	0258	16 Dec 89	0508
05 Aug 89	0244	21 Dec 89	0358
10 Aug 89	0240	28 Dec 89	0351



STATION: SOUTH POLE LAUNCH DATE: 5 JAN 89 330 Z ECC SONDE: 4A3723
 SURFACE CONDITIONS: PRESSURE 691.1 MB, TEMPERATURE -26.0 C, HUMIDITY 46.3 %
 CAL DATA: AIR TEMP 30.0 C AT 73.3 ORD; HUM 33.0 % AT 77.8 ORD; TBOX 25.0 C AT 71.5 ORD;
 O3 ORD ZERO 27.6, BKGND 28.0, CAL 61.4; O3 BKGND 0.062 MICROAMP; FLOW RATE 27.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 292.; SONDE TOTAL O3 265.; C.F. 1.102

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATCMC	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	691.1	2835.	24.2	.035	56.5	.0000	-26.0	-34.2	46.3	274.7		
1	674.0	3017.	22.0	.033	51.2	.0005	-25.6	-33.2	49.3	277.1	8.8	309.
2	657.0	3202.	18.0	.027	42.1	.0009	-26.0	-35.1	42.3	278.7	8.8	309.
3	640.0	3391.	16.9	.026	39.7	.0012	-27.3	-35.8	44.7	279.3	9.4	341.
4	622.0	3596.	15.2	.024	35.7	.0016	-27.7	-34.2	54.5	281.2	12.4	333.
5	605.0	3795.	12.3	.020	29.0	.0019	-28.2			282.8	11.7	330.
6	587.0	4012.	12.9	.022	30.3	.0022	-28.6			284.8	12.9	329.
7	572.0	4197.	12.9	.023	30.3	.0025	-28.6			286.9	8.5	312.
8	557.0	4388.	13.4	.024	31.6	.0028	-28.6			289.1	4.6	282.
9	542.0	4583.	12.2	.023	29.0	.0030	-29.5			290.2	3.3	280.
10	527.0	4783.	12.2	.023	29.2	.0033	-30.2			291.8	3.4	291.
11	511.0	5002.	11.1	.022	26.6	.0036	-31.0			293.4	3.3	295.
12	497.0	5199.	14.7	.029	35.0	.0039	-31.5			295.1	1.3	278.
13	483.0	5400.	16.3	.034	39.3	.0042	-32.9			295.7	1.8	314.
14	470.0	5592.	16.4	.035	39.4	.0045	-33.9			296.9	1.6	298.
15	458.0	5773.	14.1	.031	34.2	.0049	-34.8			297.9	.8	317.
16	446.0	5958.	12.3	.028	30.1	.0051	-35.9			298.9	2.4	276.
17	433.0	6163.	10.0	.023	24.6	.0054	-36.8			300.2	3.7	253.
18	421.0	6357.	9.5	.023	23.2	.0056	-38.3			300.7	3.8	244.
19	409.0	6555.	10.6	.026	26.1	.0059	-39.5			301.7	3.6	257.
20	395.0	6793.	9.5	.024	23.5	.0061	-40.9			302.9	3.7	296.
21	384.0	6985.	9.5	.025	23.7	.0063	-42.4			303.4	3.8	322.
22	373.0	7180.	8.8	.024	22.4	.0066	-44.1			303.7	3.7	326.
23	362.0	7381.	8.8	.024	22.5	.0068	-45.5			304.4	5.5	323.
24	350.0	7605.	8.4	.024	21.3	.0070	-46.9			305.4	6.4	318.
25	340.0	7796.	8.9	.026	22.8	.0072	-48.2			306.1	6.1	313.
26	329.0	8012.	10.6	.032	27.4	.0074	-49.7			307.0	5.4	311.
27	317.0	8255.	10.1	.032	26.2	.0077	-50.6			309.0	4.0	306.
28	305.0	8506.	8.9	.029	23.4	.0080	-52.2			310.3	3.8	301.
29	293.0	8764.	12.3	.042	32.4	.0083	-53.7			311.6	3.8	296.
30	285.0	8942.	15.2	.053	40.1	.0086	-54.8			312.5	3.0	274.
31	277.0	9125.	53.4	.193	139.0	.0091	-51.4			320.0	2.7	266.
32	268.0	9341.	63.5	.237	164.3	.0106	-50.0			325.1	2.9	235.
33	261.0	9515.	72.4	.277	185.0	.0119	-47.2			331.7	3.3	226.
34	250.0	9800.	75.7	.303	192.7	.0144	-46.2			337.3	4.3	189.
35	245.0	9935.	75.8	.309	191.9	.0156	-45.2			340.7	5.0	194.
36	237.0	10157.	76.7	.324	192.9	.0176	-43.8			346.1	5.0	201.
37	230.0	10359.	68.1	.296	171.2	.0194	-43.4			349.7	3.7	199.
38	222.0	10597.	66.5	.300	167.5	.0212	-43.8			352.6	2.6	222.
39	215.0	10812.	79.1	.368	198.6	.0230	-43.4			356.5	3.1	207.
40	210.0	10971.	80.2	.382	200.6	.0244	-42.4			360.4	4.1	234.
41	203.0	11200.	81.2	.400	202.7	.0265	-42.0			364.6	7.2	204.
42	196.7	11414.	80.3	.408	200.2	.0285	-41.7			368.3	8.8	177.
43	190.0	11649.	80.5	.424	200.8	.0307	-41.6			372.2	6.0	168.
44	184.1	11863.	70.9	.385	177.3	.0326	-42.0			374.9	4.8	169.
45	178.7	12064.	69.0	.386	172.5	.0343	-42.4			377.5	4.5	199.
46	173.0	12284.	71.8	.415	179.5	.0361	-42.0			381.7	4.6	202.
47	167.4	12506.	70.3	.420	175.4	.0379	-42.0			385.3	5.4	160.
48	161.9	12732.	73.7	.455	184.4	.0398	-42.4			388.3	3.5	168.
49	156.1	12979.	87.6	.561	218.8	.0420	-42.0			393.0	2.1	226.

STATION: SOUTH POLE			LAUNCH DATE: 5 JAN 89 330 Z				ECC SONDE: 4A3723					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	150.5	13227.	84.7	.563	211.1	.0444	-41.6			397.9	4.2	216.
51	145.3	13465.	91.9	.632	228.9	.0468	-41.3			402.4	6.2	203.
52	141.0	13670.	99.9	.709	248.8	.0490	-41.3			405.8	5.1	182.
53	136.3	13900.	104.1	.764	259.4	.0517	-41.6			409.3	4.4	187.
54	132.0	14117.	107.6	.815	268.0	.0544	-41.3			413.5	5.3	216.
55	127.5	14353.	107.9	.846	268.1	.0573	-40.9			418.4	6.3	211.
56	123.3	14581.	102.6	.832	254.6	.0601	-40.6			422.9	6.4	194.
57	119.1	14817.	112.5	.944	279.4	.0629	-40.6			427.1	4.9	180.
58	115.0	15056.	117.0	1.017	290.4	.0660	-40.6			431.4	4.3	175.
59	110.8	15309.	121.4	1.096	301.2	.0695	-40.5			436.3	5.6	173.
60	107.5	15515.	125.6	1.168	311.4	.0724	-40.3			440.4	5.2	158.
61	104.7	15696.	129.1	1.233	319.7	.0750	-39.9			444.5	4.9	162.
62	101.8	15888.	138.8	1.364	341.6	.0779	-38.6			450.7	4.5	184.
63	98.7	16101.	144.9	1.468	355.4	.0813	-37.9			456.0	2.9	186.
64	96.0	16292.	153.8	1.602	377.2	.0845	-37.9			459.6	4.0	177.
65	93.2	16496.	147.5	1.583	362.7	.0879	-38.3			462.7	4.6	170.
66	90.1	16728.	147.5	1.637	363.6	.0918	-38.8			466.1	3.1	155.
67	87.0	16969.	161.3	1.854	397.0	.0960	-38.7			471.1	2.2	171.
68	83.9	17218.	164.3	1.958	403.2	.1006	-37.9			477.6	2.5	174.
69	81.0	17461.	150.3	1.855	367.5	.1050	-37.2			483.8	2.5	153.
70	78.0	17722.	151.9	1.948	372.4	.1095	-37.6			488.2	1.6	175.
71	75.0	17992.	154.9	2.065	380.1	.1142	-37.9			493.2	1.6	237.
72	72.5	18226.	154.9	2.136	380.2	.1182	-37.9			498.0	3.2	214.
73	70.0	18468.	154.6	2.208	378.9	.1225	-37.6			503.6	4.6	183.
74	67.7	18698.	157.1	2.321	384.9	.1266	-37.5			508.7	3.7	156.
75	65.2	18958.	160.5	2.462	391.6	.1313	-36.5			516.2	2.7	183.
76	62.8	19219.	160.5	2.556	390.4	.1360	-35.7			523.6	3.3	196.
77	60.5	19478.	159.4	2.635	388.0	.1407	-36.0			528.6	2.4	164.
78	58.4	19724.	157.8	2.701	383.8	.1451	-35.9			534.2	2.0	116.
79	56.7	19929.	153.7	2.710	374.7	.1487	-36.4			537.6	2.3	136.
80	54.8	20165.	151.9	2.772	369.2	.1528	-35.6			544.7	2.9	163.
81	53.0	20398.	155.2	2.929	376.6	.1568	-35.2			550.8	2.4	153.
82	51.0	20666.	149.4	2.929	363.0	.1614	-35.6			556.0	2.0	144.
83	49.1	20930.	141.3	2.879	343.0	.1658	-35.2			563.0	1.3	181.
84	47.2	21205.	135.5	2.871	328.8	.1701	-35.2			569.3	2.1	175.
85	45.4	21476.	131.2	2.890	319.6	.1742	-36.0			573.8	2.5	133.
86	44.0	21694.	127.4	2.894	309.0	.1774	-35.2			580.9	1.1	113.
87	42.7	21903.	121.6	2.848	295.7	.1803	-35.6			584.9	2.8	154.
88	41.3	22135.	117.2	2.838	284.5	.1835	-35.2			591.5	5.8	121.
89	40.0	22358.	114.6	2.864	278.1	.1864	-35.2			596.9	4.4	86.
90	38.7	22588.	110.6	2.858	268.3	.1893	-35.2			602.6	1.9	51.
91	37.2	22864.	101.7	2.733	246.4	.1927	-35.1			609.8	2.3	68.
92	35.9	23112.	97.1	2.704	234.9	.1955	-34.7			617.0	1.6	62.
93	34.5	23390.	95.2	2.759	230.4	.1985	-34.7			624.1	.7	212.
94	33.2	23658.	91.7	2.761	222.1	.2013	-34.8			630.6	.8	106.
95	31.7	23981.	90.7	2.860	219.2	.2046	-34.5			639.7	1.4	54.
96	30.5	24251.	91.2	2.991	220.3	.2074	-34.3			647.5	.5	59.
97	29.5	24484.	89.2	3.025	215.7	.2098	-34.4			653.4	1.2	336.
98	28.3	24774.	86.8	3.068	210.1	.2127	-34.4			661.2	2.0	353.
99	27.3	25026.	83.3	3.051	201.5	.2151	-34.5			667.6	2.7	43.
100	26.2	25313.	80.2	3.061	193.9	.2177	-34.3			676.3	2.2	315.
101	25.2	25586.	77.3	3.069	186.7	.2202	-34.1			684.2	1.7	261.
102	24.4	25812.	72.9	2.989	175.9	.2221	-33.9			691.3	1.6	58.
103	23.8	25986.	70.0	2.939	168.6	.2235	-33.5			697.4	1.2	326.
104	23.1	26196.	70.5	3.052	169.9	.2251	-33.5			703.4	1.9	196.

STATION: SOUTH POLE LAUNCH DATE: 5 JAN 89 330 Z ECC SONDE: 4A3723

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	22.4	26412.	71.6	3.197	172.2	.2268	-33.2			710.4	1.9	156.
106	21.8	26603.	69.6	3.194	167.3	.2284	-32.9			716.7	2.2	143.
107	21.1	26833.	67.6	3.206	162.6	.2301	-32.9			723.4	3.5	123.
108	20.5	27036.	66.2	3.230	159.0	.2317	-32.8			729.8	2.1	352.
109	20.0	27210.	64.2	3.211	154.0	.2329	-32.5			735.8	3.2	324.
110	19.2	27497.	63.2	3.294	151.6	.2349	-32.3			745.2	3.0	118.
111	18.5	27760.	63.3	3.424	151.3	.2368	-31.5			755.6	3.0	113.
112	17.8	28033.	62.4	3.503	148.7	.2387	-31.1			765.3	2.4	88.
113	17.0	28360.	60.4	3.551	143.5	.2409	-30.3			777.9	2.3	73.
114	16.4	28616.	59.9	3.654	142.1	.2426	-29.8			787.7	2.4	317.
115	16.0	28792.	58.4	3.649	138.4	.2438	-29.4			794.5	1.8	215.
116	15.6	28973.	58.5	3.750	138.5	.2449	-29.4			800.3	2.6	194.
117	15.0	29253.	57.5	3.834	136.1	.2467	-29.3			809.7	.5	316.
118	14.7	29397.	56.0	3.807	132.1	.2476	-28.6			816.6	2.4	65.
119	14.2	29645.	53.4	3.763	125.7	.2491	-27.9			827.0	3.0	118.
120	13.8	29851.	53.4	3.872	125.5	.2503	-27.3			836.0	3.5	112.
121	13.3	30117.	52.4	3.943	122.8	.2519	-26.7			846.7	1.2	92.
122	12.7	30451.	49.9	3.930	116.4	.2537	-26.0			860.7	2.6	127.
123	12.2	30742.	46.7	3.829	108.6	.2553	-24.5			875.7	.3	110.
124	11.7	31048.	44.2	3.776	101.8	.2568	-22.6			892.9	3.5	289.
125	11.0	31501.	43.1	3.916	99.0	.2589	-22.2			910.2	3.5	289.

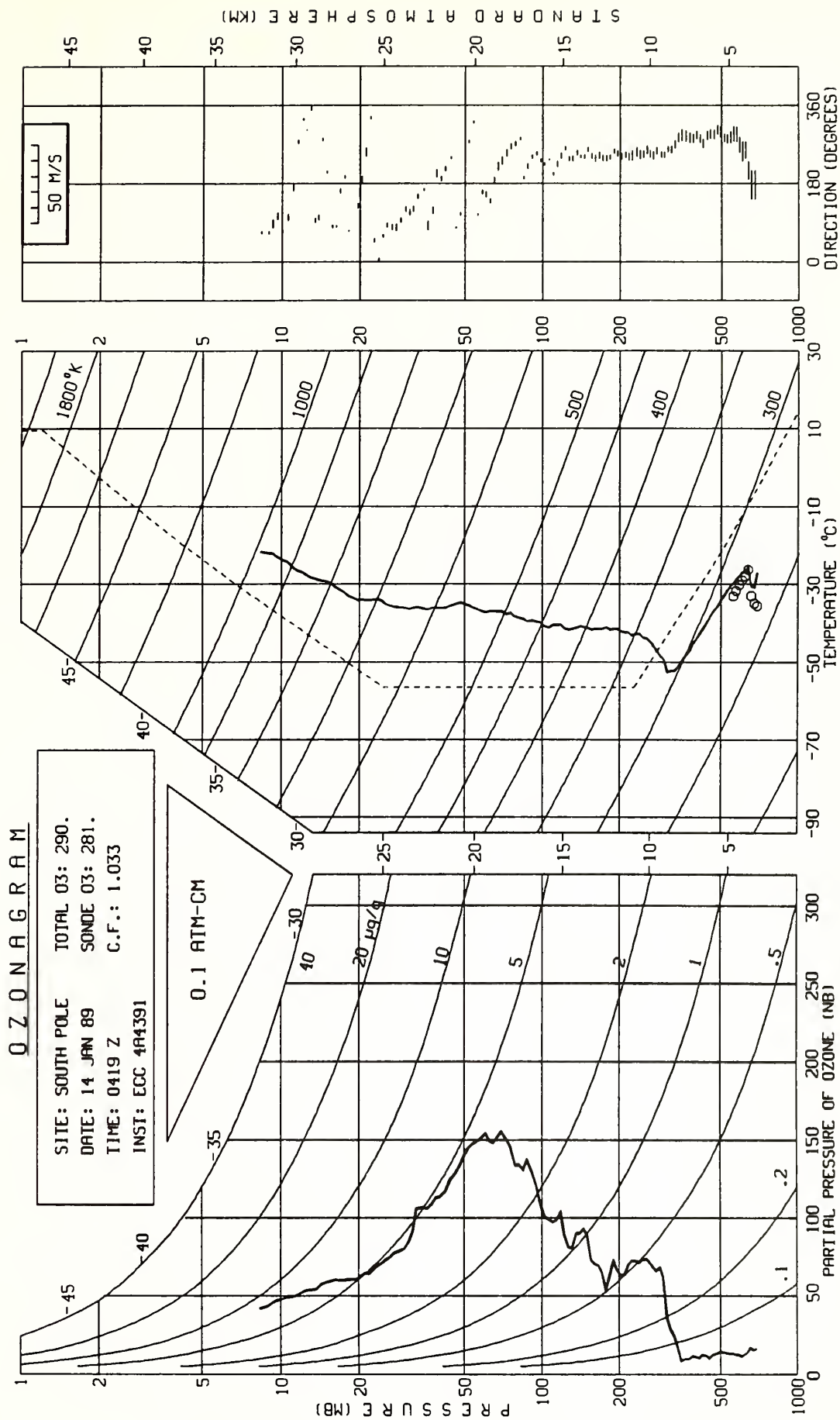
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
14.9	19.4	81.4	142.0	126.2	71.6	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110105018903	00292	991.102	ECC	TOTAL O3 FROM SONDE DATA	265
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110205018903	691	24-26	500	14-31282	2 300 10-53299 4 200 81-42191 8
1110305018903	150	85-42215	4	100142-38185	4 70155-38183 5 50145-35163 2
1110405018903	30	90-34196	120.0	64-33324	3 605 12-28330 12 285 15-55274 3
1110505018903	277	53-51266	3	261 72-47226	3 237 77-44201 5 222 67-44222 3
1110605018903	215	79-43207	3	179 69-42199	5 136104-42187 4 123103-41194 6
1110705018903	108126	-40158	5	96154-38177	4 90148-39155 3 84164-38174 3
1110805018903	81150	-37153	3	63161-36196	3 53155-35153 2 36 97-35 62 2
1110905018903	15.0	58-29316	111.0	43-22289	4



STATION: SOUTH POLE LAUNCH DATE: 14 JAN 89 419 Z ECC SONDE: 4A4391
 SURFACE CONDITIONS: PRESSURE 694.0 MB, TEMPERATURE -27.2 C, HUMIDITY 44.4 %
 CAL DATA: AIR TEMP 30.0 C AT 74.0 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 25.5 C AT 71.9 ORD;
 O3 ORD ZERO 29.2, BKGND 30.0, CAL 64.9; O3 BKGND 0.118 MICROAMP; FLOW RATE 24.1 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 290.; SONDE TOTAL O3 281.; C.F. 1.033

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	694.0	2835.	16.4	.024	38.6	.0000	-27.2	-35.8	44.4	273.1		
1	676.0	3023.	15.5	.023	37.0	.0003	-31.1	-35.1	68.6	270.7	18.2	177.
2	657.0	3225.	16.8	.026	40.2	.0007	-30.8	-33.2	81.1	273.3	18.2	177.
3	640.0	3413.	13.8	.022	32.4	.0010	-25.8	-26.5	95.4	281.0	11.7	210.
4	622.0	3620.	12.6	.020	29.4	.0013	-26.8	-28.2	88.5	282.2	10.8	257.
5	606.0	3808.	11.4	.019	26.7	.0016	-27.2	-29.2	84.0	283.9	12.4	255.
6	590.0	4000.	12.6	.021	29.6	.0018	-28.1	-30.4	81.6	285.0	10.2	270.
7	573.0	4210.	12.6	.022	29.9	.0021	-29.1	-31.9	77.6	286.1	9.5	293.
8	559.0	4386.	13.1	.023	31.1	.0023	-30.0	-33.3	74.3	287.1	9.5	294.
9	543.0	4592.	13.1	.024	31.3	.0026	-30.9			288.4	7.4	287.
10	528.0	4791.	13.5	.026	32.3	.0029	-32.1			289.3	5.9	284.
11	513.0	4994.	13.9	.027	33.6	.0032	-33.3			290.3	5.7	286.
12	497.0	5216.	14.4	.029	34.8	.0036	-34.6			291.3	6.4	299.
13	482.0	5429.	13.1	.027	32.0	.0039	-36.3			291.7	6.2	304.
14	467.0	5648.	12.3	.026	30.2	.0042	-37.1			293.4	6.0	294.
15	452.0	5873.	10.1	.022	25.0	.0045	-38.6			294.3	5.9	295.
16	439.0	6073.	11.9	.027	29.5	.0048	-40.2			294.8	5.4	291.
17	425.0	6293.	12.3	.029	30.8	.0051	-41.7			295.6	5.3	273.
18	413.0	6487.	10.2	.025	25.5	.0053	-43.0			296.3	5.0	284.
19	401.0	6685.	11.1	.028	27.8	.0056	-44.4			297.0	5.0	292.
20	388.0	6905.	11.5	.030	29.1	.0059	-45.5			298.3	5.5	284.
21	377.0	7096.	9.8	.026	25.1	.0061	-47.2			298.5	6.5	287.
22	363.0	7346.	9.8	.027	25.3	.0064	-48.7			299.9	7.0	290.
23	351.0	7566.	8.6	.024	22.3	.0067	-50.1			300.8	7.0	291.
24	340.0	7774.	17.8	.052	46.5	.0069	-51.6			301.5	5.8	286.
25	330.0	7967.	24.3	.074	63.6	.0074	-52.5			302.8	5.1	270.
26	319.0	8186.	28.7	.090	75.1	.0080	-52.5			305.8	4.6	259.
27	309.0	8392.	36.8	.119	96.4	.0088	-52.8			308.2	3.8	259.
28	299.0	8605.	61.7	.206	159.2	.0099	-49.7			315.5	3.8	246.
29	290.0	8806.	68.1	.235	175.0	.0114	-48.7			319.7	3.9	247.
30	280.0	9037.	66.1	.236	169.0	.0133	-47.2			325.0	4.6	256.
31	271.0	9254.	69.1	.255	175.6	.0150	-45.8			330.1	5.2	245.
32	263.0	9454.	71.9	.273	181.9	.0167	-44.8			334.4	5.0	249.
33	256.0	9635.	73.5	.287	185.4	.0182	-44.1			338.0	5.1	257.
34	248.0	9848.	73.4	.296	185.0	.0200	-44.0			341.3	5.0	248.
35	240.0	10068.	71.6	.298	179.5	.0219	-43.0			346.0	5.3	246.
36	233.0	10268.	72.3	.310	181.3	.0236	-43.0			348.9	6.0	253.
37	224.0	10533.	72.6	.324	182.3	.0258	-43.3			352.4	6.6	245.
38	217.0	10747.	69.6	.321	174.4	.0276	-42.6			356.7	4.9	242.
39	210.0	10969.	63.7	.303	159.5	.0293	-42.6			360.1	3.6	247.
40	203.0	11198.	63.3	.312	158.3	.0310	-42.4			364.0	4.5	243.
41	196.0	11435.	67.1	.342	167.5	.0328	-41.7			368.8	3.9	249.
42	189.8	11653.	72.4	.381	180.5	.0345	-41.7			372.2	2.7	255.
43	183.5	11882.	63.1	.344	157.6	.0363	-41.9			375.3	3.1	241.
44	177.5	12107.	53.8	.303	134.0	.0379	-41.3			380.0	3.5	238.
45	171.5	12341.	64.9	.378	161.7	.0394	-41.7			383.1	3.5	239.
46	165.8	12570.	69.6	.420	173.7	.0411	-41.7			386.8	4.3	245.
47	160.3	12799.	70.5	.440	176.0	.0430	-41.7			390.6	4.5	238.
48	155.1	13022.	73.2	.472	182.8	.0448	-41.9			393.8	3.6	243.
49	149.9	13253.	88.5	.590	220.6	.0469	-41.4			398.6	3.3	258.

STATION: SOUTH POLE			LAUNCH DATE: 14 JAN 89 419 Z				ECC SONDE: 4A4391					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	145.0	13479.	92.8	.640	231.2	.0492	-41.3			402.6	2.8	242.
51	140.2	13708.	90.0	.642	223.8	.0516	-41.0			407.0	2.1	242.
52	135.6	13934.	90.1	.664	224.3	.0540	-41.4			410.2	2.7	251.
53	131.0	14169.	80.9	.617	201.6	.0564	-41.7			413.7	3.4	238.
54	126.5	14405.	81.3	.642	203.0	.0586	-41.9			417.4	2.6	237.
55	122.2	14640.	88.5	.724	220.7	.0608	-41.7			422.0	2.6	261.
56	118.0	14877.	103.9	.880	258.1	.0634	-40.6			428.3	3.7	244.
57	113.7	15130.	98.7	.868	245.4	.0663	-40.7			432.6	3.5	225.
58	109.7	15374.	97.5	.889	242.1	.0691	-40.7			437.0	1.5	201.
59	106.0	15607.	99.1	.935	247.1	.0717	-41.4			440.1	.8	235.
60	102.1	15862.	101.0	.989	251.3	.0746	-41.0			445.6	1.5	225.
61	98.3	16120.	109.8	1.117	271.8	.0777	-40.1			452.3	2.2	233.
62	94.7	16375.	121.6	1.284	300.9	.0810	-39.9			457.4	2.4	249.
63	91.1	16640.	130.1	1.428	321.8	.0848	-39.6			463.0	2.2	242.
64	87.5	16916.	137.0	1.566	339.0	.0890	-39.8			468.1	2.9	219.
65	84.7	17138.	130.5	1.541	322.2	.0924	-39.2			473.6	1.7	193.
66	81.8	17377.	133.9	1.637	330.4	.0960	-39.0			478.8	1.7	283.
67	78.8	17634.	133.7	1.697	329.1	.0999	-38.6			484.8	3.1	273.
68	75.7	17910.	145.6	1.924	357.0	.1042	-37.6			492.3	3.2	266.
69	72.7	18189.	150.7	2.073	369.8	.1088	-37.9			497.5	4.4	251.
70	70.0	18450.	155.3	2.219	380.0	.1133	-37.2			504.3	5.3	233.
71	67.5	18701.	151.6	2.246	371.1	.1177	-37.2			509.6	5.1	219.
72	65.0	18962.	147.9	2.275	361.9	.1222	-37.1			515.4	3.4	188.
73	62.8	19200.	149.3	2.378	365.3	.1262	-37.1			520.5	2.5	139.
74	60.5	19458.	154.1	2.547	377.3	.1306	-37.4			525.5	3.5	155.
75	58.4	19702.	151.2	2.589	370.0	.1348	-37.2			531.1	2.8	160.
76	56.2	19968.	149.0	2.652	363.7	.1393	-36.7			538.2	.8	109.
77	54.0	20244.	147.6	2.733	359.7	.1440	-36.3			545.3	1.4	322.
78	51.9	20520.	144.7	2.788	351.6	.1486	-35.7			553.0	1.9	277.
79	50.0	20780.	139.8	2.797	339.5	.1528	-35.4			559.6	.9	165.
80	48.1	21050.	133.6	2.778	324.1	.1570	-35.0			566.8	1.6	110.
81	46.2	21330.	128.4	2.779	311.7	.1612	-35.4			572.4	.7	78.
82	44.1	21654.	124.1	2.815	302.1	.1659	-35.8			579.1	1.3	239.
83	42.2	21960.	116.5	2.760	284.1	.1701	-36.3			585.1	3.1	214.
84	40.6	22228.	113.5	2.795	276.8	.1736	-36.3			591.6	2.8	191.
85	39.0	22507.	113.0	2.897	275.4	.1771	-36.3			598.4	4.7	204.
86	37.7	22742.	108.6	2.882	264.8	.1801	-36.3			604.2	4.5	118.
87	36.2	23024.	105.8	2.921	258.3	.1836	-36.7			610.3	6.1	83.
88	34.8	23297.	106.8	3.068	260.6	.1868	-36.5			617.9	1.3	166.
89	33.0	23665.	105.8	3.205	257.5	.1912	-36.1			628.4	3.0	151.
90	31.9	23901.	91.3	2.862	222.7	.1940	-36.3			633.8	3.4	121.
91	30.8	24144.	84.7	2.749	206.6	.1964	-36.6			639.5	3.6	113.
92	29.7	24396.	80.2	2.702	195.7	.1988	-36.3			646.9	3.0	121.
93	28.4	24707.	79.0	2.782	192.5	.2016	-36.2			655.5	3.2	95.
94	27.3	24981.	77.9	2.852	189.6	.2040	-36.1			663.4	4.7	79.
95	26.3	25240.	75.1	2.855	182.8	.2063	-35.9			670.8	3.2	79.
96	25.2	25537.	73.1	2.901	177.5	.2088	-35.4			680.6	2.9	83.
97	24.3	25791.	71.1	2.924	171.9	.2108	-34.6			690.0	1.7	59.
98	23.5	26025.	69.4	2.953	167.5	.2127	-34.1			698.1	1.9	5.
99	22.6	26299.	66.6	2.947	160.9	.2148	-34.2			705.6	2.4	49.
100	21.9	26519.	64.2	2.933	155.2	.2164	-34.3			711.6	1.0	332.
101	21.0	26812.	64.6	3.078	156.3	.2185	-34.3			720.2	5.6	252.
102	20.3	27049.	62.8	3.093	151.8	.2202	-34.2			727.6	4.3	189.
103	19.6	27295.	60.7	3.098	146.7	.2219	-34.3			734.5	3.5	129.
104	18.9	27550.	60.7	3.213	146.6	.2237	-33.8			743.8	.3	31.

STATION: SOUTH POLE			LAUNCH DATE: 14 JAN 89			419 Z	ECC SONDE: 4A4391						
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
105	18.1	27853.	60.5	3.344	145.6	.2257	-33.3			754.7	.3	71.	
106	17.5	28090.	60.2	3.440	144.3	.2273	-32.4			764.9	1.9	195.	
107	16.8	28379.	60.2	3.584	144.1	.2292	-31.7			776.0	2.9	163.	
108	16.2	28636.	60.3	3.723	143.8	.2309	-31.1			786.2	1.0	81.	
109	15.6	28904.	59.6	3.820	141.7	.2327	-30.2			797.7	1.8	81.	
110	14.9	29231.	59.0	3.958	139.7	.2348	-29.5			810.4	1.1	206.	
111	14.3	29525.	57.5	4.023	136.3	.2367	-29.4			820.5	1.8	282.	
112	13.8	29779.	55.0	3.989	130.2	.2383	-29.1			829.7	3.5	102.	
113	13.4	29990.	54.0	4.031	127.5	.2396	-28.9			837.6	2.7	95.	
114	12.9	30262.	54.0	4.187	127.4	.2412	-28.5			848.1	2.5	353.	
115	12.4	30546.	53.4	4.306	125.6	.2428	-27.8			860.1	.5	304.	
116	12.0	30781.	52.4	4.363	122.8	.2442	-27.2			870.5	1.5	328.	
117	11.5	31088.	50.5	4.391	118.5	.2459	-26.8			882.5	2.5	277.	
118	11.0	31410.	49.5	4.497	115.6	.2477	-25.8			897.1	3.9	170.	
119	10.5	31748.	49.2	4.682	114.2	.2495	-24.5			914.0	4.2	102.	
120	10.0	32103.	47.7	4.771	110.6	.2514	-23.9			929.3	2.3	93.	
121	9.6	32410.	47.1	4.911	108.8	.2529	-23.2			942.9	4.5	106.	
122	9.2	32698.	45.3	4.917	104.3	.2544	-22.3			957.1	5.6	87.	
123	8.9	32974.	43.5	4.896	100.2	.2557	-22.3			967.5	1.5	67.	
124	8.3	33444.	42.1	5.058	96.8	.2579	-21.9			986.9	1.5	67.	

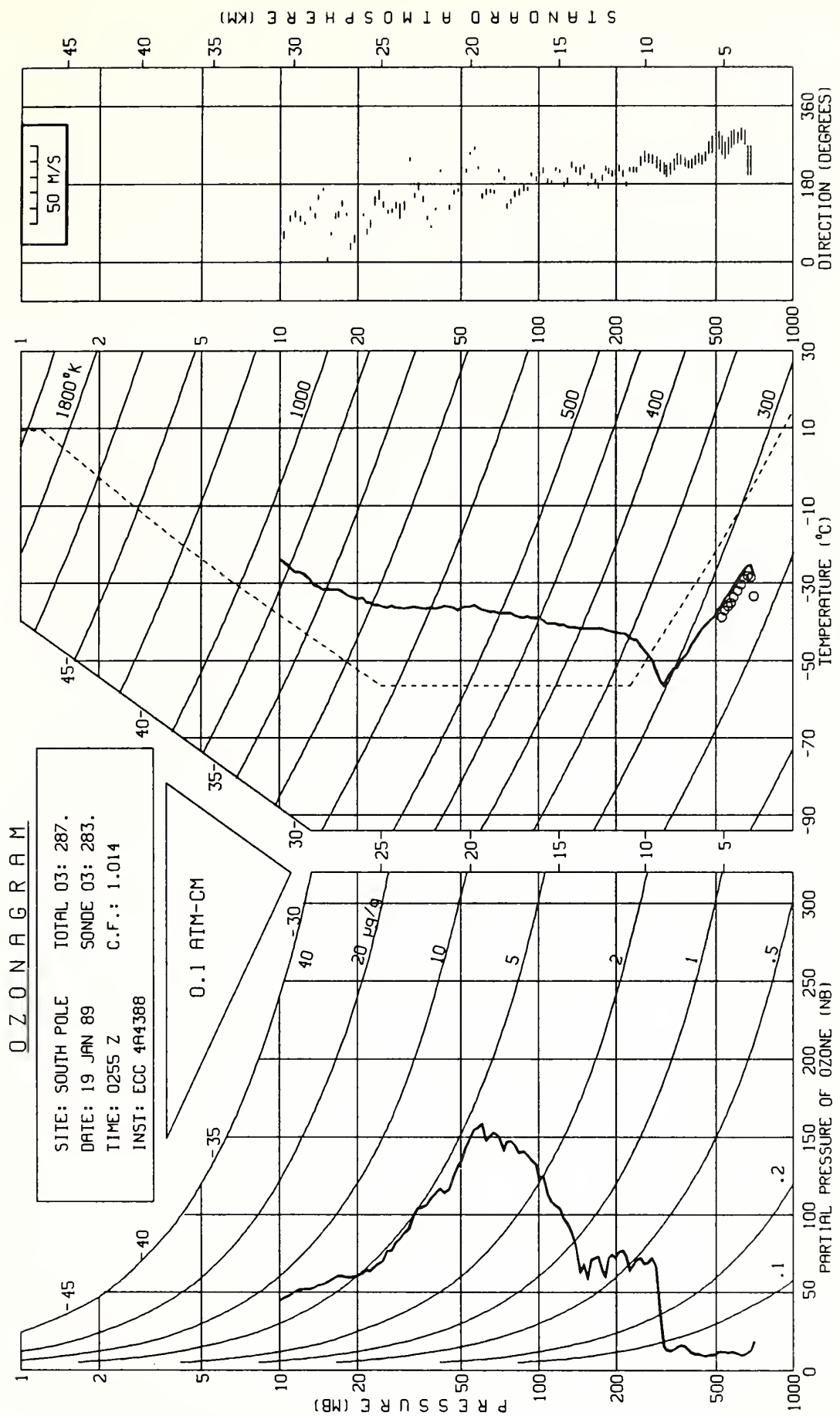
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
13.6	29.3	72.8	123.2	125.4	68.0	51.2	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110114018904	00290	991.033	ECC	TOTAL O3 FROM SONDE DATA	281
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110214018904	694	16-27	500	14-34297	6 300 59-50247 4 200 65-42246 4
1110314018904	150	88-41258	3	100106-41229	2 70155-37233 5 50140-35165 1
1110414018904	30	81-36119	320.0	62-34164	410.0 48-24 93 2 676 15-31177 18
1110514018904	657	17-31177	18	640 14-26210	12 351 9-50291 7 340 18-52286 6
1110614018904	309	37-53259	4	256 74-44257	5 190 72-42255 3 178 54-41238 4
1110714018904	172	65-42239	4	155 73-42243	4 145 93-41242 3 127 81-42237 3
1110814018904	118104-41244	4	110	97-41201	2 88137-40219 3 79134-39273 3
1110914018904	42116-36214	3	33106-36151	3	8.3 42-22 67 2



STATION: SOUTH POLE LAUNCH DATE: 19 JAN 89 255 Z ECC SONDE: 4A4388
 SURFACE CONDITIONS: PRESSURE 703.0 MB, TEMPERATURE -28.2 C, HUMIDITY 60.6 %
 CAL DATA: AIR TEMP 30.0 C AT 73.3 ORD; HUM 33.0 % AT 77.9 ORD; TBOX 24.0 C AT 71.0 ORD;
 O3 ORD ZERO 28.5, BKGND 29.0, CAL 64.3; O3 BKGND 0.073 MICROAMP; FLOW RATE 26.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 287.; SONDE TOTAL O3 283.; C.F. 1.014

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	703.0	2835.	18.6	.026	43.7	.0000	-28.2	-33.6	60.6	270.9		
1	684.0	3033.	12.9	.019	30.0	.0004	-25.6	-28.7	75.7	276.0	19.0	234.
2	665.0	3237.	11.6	.017	26.9	.0006	-25.7	-28.3	80.0	278.1	19.0	234.
3	647.0	3436.	10.1	.016	23.7	.0009	-26.6	-29.1	80.6	279.2	9.3	288.
4	627.0	3662.	9.7	.016	22.9	.0011	-27.9	-30.6	79.4	280.2	7.7	294.
5	608.0	3882.	10.8	.018	25.4	.0014	-29.4	-32.2	77.6	281.0	7.5	287.
6	587.0	4132.	11.7	.020	27.9	.0017	-31.0	-33.9	76.6	282.0	9.7	287.
7	572.0	4316.	11.8	.021	28.1	.0019	-32.3	-35.3	75.8	282.6	10.8	283.
8	558.0	4490.	11.3	.020	27.1	.0021	-33.2	-36.2	75.8	283.5	11.0	268.
9	542.0	4694.	11.8	.022	28.3	.0024	-34.3	-37.3	75.6	284.6	11.4	258.
10	528.0	4877.	11.8	.022	28.6	.0026	-35.9	-39.0	74.6	284.8	12.0	269.
11	513.0	5077.	11.8	.023	28.7	.0029	-36.9			285.9	11.5	281.
12	500.0	5254.	10.3	.021	25.5	.0031	-38.3			286.3	10.9	278.
13	483.0	5491.	9.8	.020	24.4	.0034	-39.4			287.8	10.9	271.
14	468.0	5707.	9.8	.021	24.4	.0036	-40.2			289.4	8.3	264.
15	453.0	5928.	8.9	.020	22.3	.0039	-41.3			290.8	6.0	244.
16	439.0	6141.	9.8	.022	24.6	.0041	-42.2			292.1	6.1	236.
17	426.0	6344.	10.3	.024	26.1	.0043	-43.4			293.2	6.6	240.
18	413.0	6552.	10.4	.025	26.3	.0046	-44.8			294.0	6.4	235.
19	400.0	6765.	11.4	.028	28.8	.0049	-46.2			294.9	6.1	228.
20	388.0	6967.	13.2	.034	33.8	.0051	-47.9			295.2	5.6	226.
21	376.0	7174.	15.5	.041	40.2	.0055	-49.1			296.3	5.9	231.
22	362.0	7422.	16.0	.044	41.5	.0059	-50.3			297.9	6.4	236.
23	351.0	7623.	15.1	.043	39.4	.0063	-52.0			298.3	7.0	236.
24	341.0	7810.	13.7	.040	35.9	.0067	-52.2			300.5	7.5	224.
25	329.0	8041.	12.3	.037	32.4	.0070	-53.7			301.5	7.7	216.
26	318.0	8259.	13.2	.041	34.9	.0074	-55.3			302.2	7.7	210.
27	310.0	8421.	15.9	.051	42.5	.0076	-56.7			302.6	7.5	216.
28	300.0	8629.	36.7	.122	97.3	.0082	-55.3			307.3	7.4	222.
29	290.0	8847.	66.2	.228	173.6	.0093	-52.8			313.9	7.1	229.
30	279.0	9098.	72.1	.258	186.4	.0114	-49.9			321.6	6.0	237.
31	270.0	9313.	69.3	.257	178.3	.0132	-48.7			326.3	5.6	239.
32	260.0	9562.	68.2	.262	174.6	.0153	-47.6			331.4	7.3	244.
33	250.0	9822.	72.1	.288	183.4	.0174	-46.2			337.3	6.0	233.
34	242.0	10039.	71.1	.294	179.8	.0192	-44.8			342.6	3.6	213.
35	235.0	10235.	67.9	.289	171.5	.0209	-44.8			345.4	3.7	213.
36	227.0	10467.	64.2	.283	162.1	.0227	-44.3			349.5	2.8	213.
37	220.0	10677.	73.2	.333	184.0	.0243	-43.4			354.2	3.1	180.
38	213.0	10895.	77.0	.361	193.4	.0262	-43.2			357.7	4.6	204.
39	206.0	11120.	76.3	.370	191.5	.0282	-43.1			361.3	4.4	217.
40	198.9	11356.	72.1	.363	180.9	.0303	-42.9			365.2	3.6	206.
41	193.0	11560.	74.0	.384	185.4	.0320	-42.7			368.8	3.6	204.
42	187.6	11751.	72.4	.386	181.4	.0336	-42.5			372.0	3.9	210.
43	182.1	11952.	60.4	.331	150.9	.0352	-42.4			375.4	3.5	216.
44	176.7	12156.	64.3	.364	160.6	.0367	-42.0			379.4	3.7	194.
45	171.1	12374.	72.9	.426	182.1	.0383	-42.0			382.9	3.5	176.
46	165.9	12583.	72.1	.435	180.2	.0401	-42.0			386.3	2.8	187.
47	160.5	12807.	71.0	.442	177.4	.0419	-42.0			389.9	3.3	198.
48	155.2	13034.	59.1	.381	147.8	.0437	-42.0			393.7	2.2	179.
49	150.0	13265.	67.8	.452	169.2	.0453	-42.0			397.5	2.8	219.

STATION: SOUTH POLE LAUNCH DATE: 19 JAN 89 255 Z ECC SONDE: 4A4388

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	144.8	13504.	63.0	.435	157.4	.0472	-42.0			401.6	4.8	209.
51	139.4	13762.	80.3	.576	200.2	.0492	-41.7			406.4	3.7	213.
52	134.2	14019.	88.9	.662	221.6	.0516	-41.7			410.9	3.4	225.
53	129.6	14256.	94.4	.729	235.3	.0541	-41.6			415.2	4.1	187.
54	125.2	14491.	98.0	.783	243.5	.0567	-40.9			420.6	3.2	179.
55	121.0	14723.	104.0	.859	258.9	.0593	-41.1			424.2	1.9	210.
56	116.6	14975.	105.7	.906	262.5	.0624	-40.6			429.7	2.0	214.
57	112.3	15231.	108.2	.964	268.7	.0655	-40.6			434.4	2.1	184.
58	108.5	15465.	113.4	1.045	281.4	.0684	-40.6			438.7	3.3	187.
59	104.5	15721.	124.8	1.194	308.6	.0718	-39.8			445.0	3.6	212.
60	100.6	15982.	123.8	1.230	305.4	.0756	-39.2			450.9	2.9	203.
61	97.9	16168.	132.2	1.350	326.3	.0783	-39.2			454.4	3.2	192.
62	93.8	16461.	134.9	1.438	333.0	.0827	-39.2			460.0	2.1	202.
63	90.6	16699.	138.1	1.524	340.2	.0864	-38.8			465.4	2.1	169.
64	87.4	16946.	141.0	1.613	347.9	.0903	-39.2			469.4	3.8	171.
65	84.0	17218.	139.9	1.665	344.9	.0946	-39.0			475.3	4.4	162.
66	81.0	17468.	144.5	1.785	355.6	.0987	-38.6			481.1	3.9	157.
67	78.1	17718.	147.3	1.886	361.4	.1029	-37.9			487.5	2.9	140.
68	75.3	17970.	146.8	1.949	360.1	.1071	-37.9			492.6	2.9	128.
69	73.8	18109.	141.6	1.919	347.4	.1093	-37.9			495.5	2.0	193.
70	70.1	18463.	150.6	2.149	369.5	.1151	-37.9			502.8	2.2	211.
71	67.3	18744.	152.8	2.270	374.3	.1199	-37.5			509.6	2.3	162.
72	65.0	18984.	150.5	2.316	368.8	.1241	-37.6			514.3	2.6	164.
73	62.8	19222.	147.7	2.352	361.7	.1281	-37.3			520.0	3.5	162.
74	60.7	19457.	158.3	2.609	387.4	.1322	-37.1			525.7	3.0	152.
75	58.5	19713.	156.1	2.669	380.9	.1368	-36.5			532.5	1.1	218.
76	56.3	19979.	154.5	2.744	375.8	.1415	-35.9			539.9	1.4	263.
77	54.3	20230.	148.7	2.739	362.5	.1458	-36.3			544.6	1.3	251.
78	52.3	20490.	142.8	2.731	348.1	.1502	-36.3			550.4	1.9	211.
79	50.3	20761.	134.7	2.678	328.6	.1545	-36.5			556.0	2.7	158.
80	48.7	20984.	130.8	2.685	319.9	.1578	-37.2			559.5	2.4	166.
81	47.0	21230.	124.8	2.655	304.4	.1615	-36.5			566.8	2.7	161.
82	45.1	21516.	116.3	2.580	283.4	.1654	-36.3			574.2	2.9	126.
83	43.4	21783.	114.0	2.627	277.7	.1689	-36.1			580.9	.6	165.
84	41.7	22060.	116.6	2.795	284.3	.1725	-36.5			586.6	1.0	211.
85	40.0	22348.	113.5	2.838	277.2	.1763	-36.8			592.9	1.5	122.
86	38.3	22649.	109.9	2.868	267.9	.1801	-36.5			601.0	1.4	81.
87	37.0	22888.	106.3	2.873	259.8	.1830	-36.8			606.3	2.1	102.
88	35.7	23136.	105.0	2.941	256.3	.1860	-36.7			612.8	4.2	145.
89	34.3	23413.	104.1	3.034	254.1	.1893	-36.5			620.2	4.9	175.
90	33.0	23681.	99.5	3.015	242.7	.1924	-36.4			627.5	2.9	154.
91	31.6	23982.	90.6	2.867	221.1	.1957	-36.5			634.9	2.0	238.
92	30.2	24296.	87.9	2.912	214.6	.1989	-36.7			642.8	5.8	130.
93	29.0	24577.	84.0	2.896	204.8	.2017	-36.5			650.7	9.7	117.
94	28.0	24820.	81.8	2.920	199.4	.2039	-36.5			657.3	3.7	131.
95	27.0	25072.	76.9	2.848	187.4	.2062	-36.1			665.2	2.4	119.
96	26.0	25334.	76.6	2.946	186.8	.2085	-36.5			671.3	2.1	116.
97	25.0	25606.	69.8	2.792	170.2	.2108	-36.3			679.6	3.6	133.
98	24.0	25889.	68.6	2.857	166.8	.2130	-35.9			688.8	5.7	155.
99	23.2	26125.	66.2	2.855	161.2	.2148	-35.9			695.5	5.5	141.
100	22.3	26400.	63.6	2.852	154.3	.2169	-35.2			705.4	4.6	89.
101	21.6	26623.	64.3	2.977	156.1	.2185	-35.2			711.8	3.2	70.
102	20.9	26853.	62.3	2.980	150.2	.2201	-33.9			722.6	1.5	109.
103	20.0	27161.	60.8	3.038	146.9	.2222	-34.3			730.5	3.7	90.
104	19.3	27411.	60.1	3.111	144.9	.2240	-33.9			739.2	4.7	53.

STATION: SOUTH POLE LAUNCH DATE: 19 JAN 89 255 Z ECC SONDE: 4A4388

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	18.6	27670.	59.6	3.207	143.8	.2257	-33.6			747.9	4.0	36.
106	18.0	27900.	59.7	3.319	143.5	.2272	-33.1			756.6	2.0	110.
107	17.3	28179.	60.6	3.500	145.1	.2291	-32.2			768.2	3.5	135.
108	16.8	28387.	60.6	3.605	145.1	.2305	-31.9			775.5	4.0	111.
109	16.3	28600.	59.4	3.647	142.3	.2319	-31.9			782.2	4.1	107.
110	15.7	28865.	57.9	3.689	138.6	.2336	-31.9			790.6	2.1	65.
111	15.2	29094.	56.4	3.710	134.9	.2351	-31.8			798.4	2.3	7.
112	14.6	29379.	55.2	3.780	132.2	.2368	-31.9			807.2	1.7	168.
113	14.0	29676.	54.5	3.891	129.8	.2387	-31.0			820.1	3.3	150.
114	13.6	29881.	53.3	3.916	126.9	.2399	-30.8			827.3	3.3	107.
115	13.0	30203.	52.0	4.003	123.0	.2418	-29.0			844.4	2.5	124.
116	12.4	30542.	52.1	4.205	122.8	.2437	-27.9			859.6	1.3	90.
117	11.9	30838.	51.8	4.356	121.7	.2454	-27.3			872.1	3.5	101.
118	11.4	31147.	50.3	4.413	118.1	.2471	-27.3			882.9	4.3	111.
119	10.9	31471.	48.3	4.430	112.8	.2488	-26.0			899.1	3.8	100.
120	10.3	31882.	46.4	4.501	107.6	.2510	-24.6			918.6	5.0	63.
121	10.0	32097.	44.7	4.473	103.7	.2520	-24.1			928.4	5.0	63.

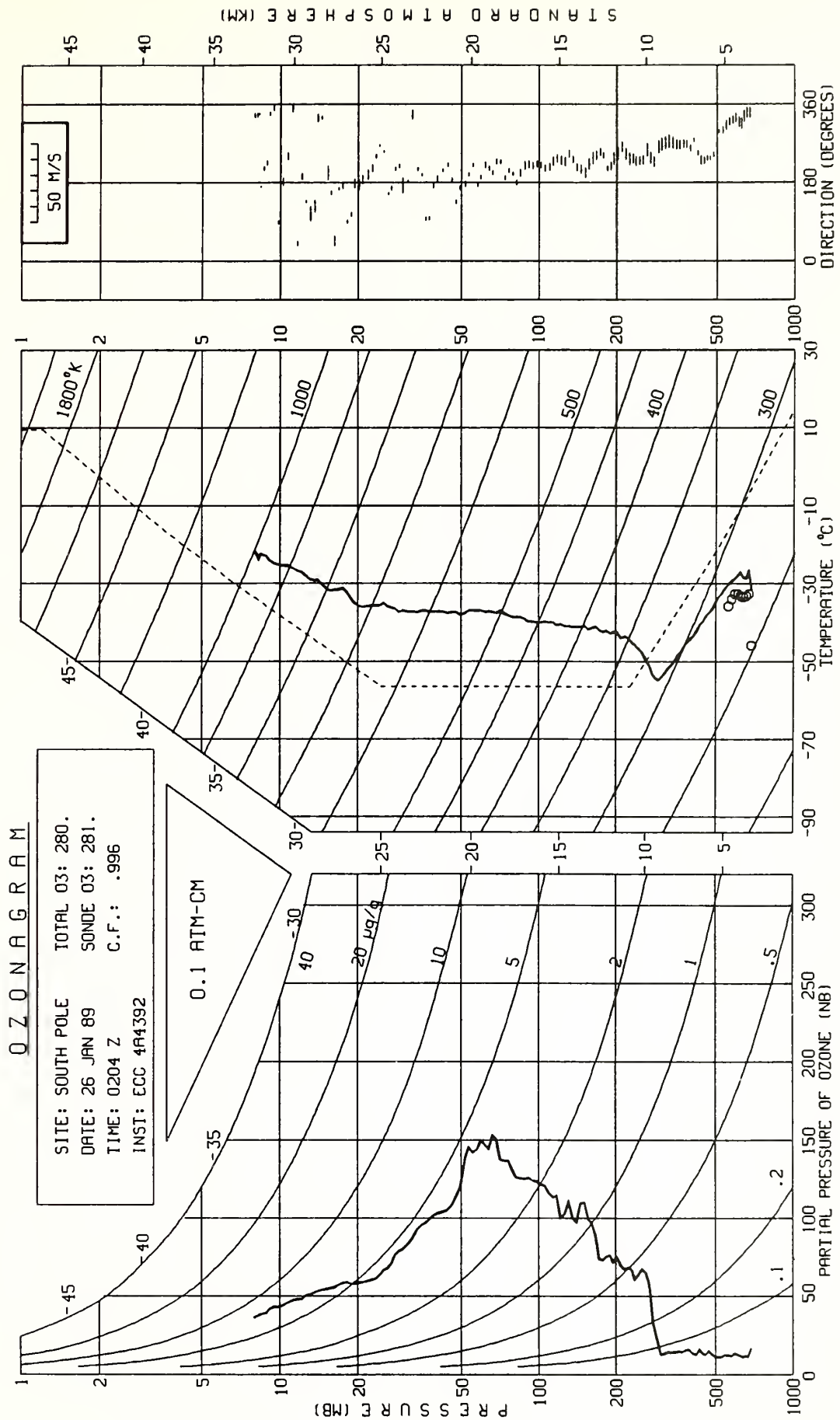
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
11.6	26.1	72.0	131.5	123.8	68.2	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110119018903	00287		991.014	ECC	TOTAL O3 FROM SONDE DATA 283
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110219018903	703	19-28		700	18-28 37 3 500 10-38278 11 300 37-55222 7
1110319018903	200	73-43208	4	150	68-42219 3 100126-39201 3 70151-38209 2
1110419018903	50134	-37159	3	30	87-37128 620.0 61-34 90 4 665 12-26234 19
1110519018903	310	16-57216	8	290	66-53229 7 279 72-50237 6 242 71-45213 4
1110619018903	227	64-44213	3	213	77-43204 5 188 72-43210 4 182 60-42216 4
1110719018903	171	73-42176	4	161	71-42198 3 155 59-42179 2 145 63-42209 5
1110819018903	134	89-42225	3	63148	-37162 4 61158-37152 3 45116-36126 3
1110919018903	34104	-37175	514.6	55	-32168 210.0 45-24 63 5



STATION: SOUTH POLE LAUNCH DATE: 26 JAN 89 204 Z ECC SONDE: 4A4392
 SURFACE CONDITIONS: PRESSURE 690.5 MB, TEMPERATURE -31.9 C, HUMIDITY 23.3 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 24.0 C AT 71.2 ORD;
 O3 ORD ZERO 28.3, BKGND 28.5, CAL 61.3; O3 BKGND 0.032 MICROAMP; FLOW RATE 26.0 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 280.; SONDE TOTAL O3 281.; C.F. .996

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	690.5	2835.	16.8	.024	40.2	.0000	-31.9	-46.1	23.3	268.2		
1	673.0	3018.	11.3	.017	26.4	.0003	-27.1	-32.9	58.6	275.5	6.6	342.
2	657.0	3191.	11.7	.018	27.7	.0005	-28.9	-33.4	65.6	275.5	6.6	342.
3	640.0	3379.	11.2	.017	26.4	.0008	-28.6	-33.6	62.9	277.8	6.9	333.
4	624.0	3561.	12.2	.020	28.8	.0010	-27.3	-33.4	56.8	281.4	6.8	316.
5	610.0	3724.	12.7	.021	30.1	.0012	-28.1	-32.9	64.3	282.3	6.2	320.
6	593.0	3926.	13.2	.022	31.4	.0015	-29.0	-32.9	69.7	283.5	5.5	329.
7	577.0	4122.	11.7	.020	27.8	.0018	-29.5	-34.2	64.8	285.1	4.5	324.
8	560.0	4335.	12.1	.022	29.0	.0020	-30.4	-36.0	59.2	286.4	5.1	321.
9	543.0	4554.	12.6	.023	30.3	.0023	-31.5			287.7	5.5	312.
10	527.0	4765.	11.2	.021	26.9	.0026	-32.8			288.6	4.5	301.
11	510.0	4995.	11.2	.022	26.9	.0029	-33.9			290.0	2.3	298.
12	498.0	5161.	11.6	.023	28.2	.0031	-35.2			290.4	2.0	267.
13	485.0	5345.	12.6	.026	30.9	.0034	-36.7			290.8	2.9	245.
14	470.0	5562.	15.1	.032	37.0	.0037	-37.8			292.1	2.4	236.
15	458.0	5740.	12.5	.027	31.0	.0040	-38.5			293.4	3.1	236.
16	446.0	5922.	13.0	.029	32.4	.0042	-39.8			293.9	4.6	231.
17	432.0	6140.	16.0	.037	39.7	.0046	-40.9			295.2	5.5	232.
18	420.0	6331.	12.5	.030	31.5	.0049	-42.4			295.6	3.2	248.
19	406.0	6559.	13.5	.033	34.2	.0053	-43.9			296.7	2.0	278.
20	393.0	6777.	15.9	.041	40.3	.0056	-44.7			298.3	3.7	260.
21	380.0	7002.	15.4	.041	39.1	.0060	-45.6			300.1	4.5	268.
22	369.0	7197.	14.4	.039	36.8	.0064	-47.2			300.5	5.2	270.
23	357.0	7415.	14.8	.042	38.0	.0068	-48.5			301.6	5.6	267.
24	347.0	7602.	14.2	.041	36.7	.0071	-49.8			302.2	6.2	267.
25	335.0	7831.	14.2	.043	37.0	.0075	-51.1			303.6	7.5	272.
26	323.0	8068.	14.2	.044	37.2	.0079	-52.1			305.3	8.3	275.
27	313.0	8271.	13.2	.042	34.8	.0082	-53.4			306.3	8.1	272.
28	303.0	8479.	12.7	.042	33.8	.0085	-54.5			307.5	7.4	267.
29	294.0	8672.	22.5	.077	59.5	.0089	-55.0			309.5	7.6	262.
30	283.0	8917.	33.0	.116	86.6	.0097	-53.9			314.5	6.7	228.
31	273.0	9149.	57.4	.210	149.2	.0107	-51.4			321.4	7.4	237.
32	265.0	9343.	64.6	.244	167.3	.0121	-50.0			326.2	8.1	256.
33	256.0	9570.	67.5	.264	173.1	.0139	-48.0			332.3	6.1	232.
34	247.0	9806.	63.8	.258	162.9	.0158	-47.0			337.2	5.5	230.
35	239.0	10025.	60.5	.253	153.7	.0174	-45.9			342.2	5.8	229.
36	233.0	10194.	66.6	.286	168.9	.0186	-45.4			345.3	6.2	235.
37	225.0	10428.	68.4	.304	172.7	.0204	-44.4			350.3	8.1	235.
38	218.0	10640.	67.3	.309	169.5	.0221	-43.7			354.6	7.0	246.
39	210.0	10891.	69.4	.330	174.8	.0241	-44.1			357.7	6.4	262.
40	202.0	11152.	75.3	.373	188.7	.0262	-42.7			363.9	8.4	247.
41	195.5	11373.	71.7	.367	179.6	.0281	-42.7			367.3	7.8	236.
42	189.8	11573.	76.5	.403	191.8	.0299	-43.0			370.0	5.2	218.
43	183.8	11789.	75.5	.411	188.9	.0318	-42.4			374.3	3.2	212.
44	178.0	12006.	73.0	.410	182.6	.0337	-42.6			377.6	3.8	242.
45	172.4	12222.	74.0	.429	184.9	.0355	-42.2			381.7	4.9	250.
46	167.0	12438.	88.6	.531	220.7	.0374	-41.3			386.6	6.0	242.
47	161.4	12669.	96.7	.599	241.1	.0399	-41.6			389.9	7.3	236.
48	156.0	12900.	99.3	.636	247.8	.0425	-42.0			393.0	6.9	222.
49	151.0	13121.	110.0	.729	273.9	.0451	-41.2			398.1	6.6	203.

STATION: SOUTH POLE				LAUNCH DATE: 26 JAN 89				204 Z		ECC SONDE: 4A4392			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	145.6	13368.	109.7	.754	273.3	.0482	-41.3			402.0	5.3	211.	
51	140.3	13620.	97.1	.692	241.8	.0513	-41.3			406.3	5.3	216.	
52	135.5	13856.	100.3	.740	249.7	.0540	-41.3			410.4	4.4	233.	
53	130.9	14091.	110.7	.846	275.6	.0568	-41.2			414.7	4.5	246.	
54	126.2	14339.	102.5	.812	255.1	.0599	-41.2			419.0	5.4	228.	
55	121.7	14586.	100.3	.824	248.9	.0628	-40.6			424.4	5.0	231.	
56	117.4	14831.	114.6	.976	284.9	.0657	-40.9			428.3	5.0	235.	
57	113.5	15061.	113.2	.997	280.6	.0688	-40.2			433.7	5.2	229.	
58	109.7	15294.	115.7	1.055	286.7	.0718	-40.2			438.0	4.9	217.	
59	105.7	15547.	120.6	1.141	298.4	.0752	-40.0			443.2	4.1	213.	
60	101.8	15804.	121.6	1.194	301.3	.0787	-40.2			447.4	3.8	220.	
61	98.3	16042.	123.3	1.254	305.5	.0820	-40.2			451.9	3.8	223.	
62	95.0	16276.	124.0	1.305	306.8	.0853	-40.0			456.9	4.1	219.	
63	91.6	16524.	125.7	1.372	311.2	.0888	-40.0			461.7	4.7	222.	
64	88.2	16783.	125.1	1.418	308.7	.0925	-39.3			468.1	5.0	219.	
65	84.9	17045.	125.6	1.479	309.5	.0963	-38.9			474.0	4.4	202.	
66	81.9	17292.	126.1	1.539	310.7	.0998	-38.9			478.9	3.3	180.	
67	79.3	17513.	130.5	1.646	321.6	.1030	-38.9			483.3	2.4	200.	
68	76.6	17751.	136.6	1.783	336.0	.1066	-38.5			489.0	2.9	207.	
69	74.0	17988.	136.5	1.845	335.3	.1103	-38.0			494.7	2.8	191.	
70	71.2	18255.	137.1	1.926	335.7	.1144	-37.2			501.9	2.7	228.	
71	68.7	18507.	150.5	2.192	369.0	.1184	-37.8			506.0	3.6	228.	
72	66.3	18749.	152.8	2.306	374.5	.1226	-37.5			511.7	2.9	202.	
73	64.1	18982.	144.1	2.248	352.9	.1266	-37.4			517.0	2.8	213.	
74	61.9	19221.	147.1	2.376	360.3	.1304	-37.5			521.8	3.8	220.	
75	59.7	19474.	149.6	2.506	365.7	.1347	-37.1			528.2	2.2	192.	
76	57.8	19693.	144.0	2.491	352.4	.1383	-37.2			532.7	1.9	174.	
77	55.4	19990.	142.1	2.566	347.5	.1431	-37.1			539.6	2.2	220.	
78	53.5	20232.	145.4	2.719	355.6	.1471	-37.1			545.0	2.2	199.	
79	51.9	20445.	138.1	2.664	338.6	.1505	-37.8			548.3	3.8	177.	
80	49.5	20761.	119.7	2.417	294.1	.1553	-38.2			554.5	2.6	167.	
81	47.6	21034.	113.6	2.387	278.3	.1590	-37.5			562.5	2.2	136.	
82	45.0	21266.	108.3	2.354	265.4	.1619	-37.5			567.9	2.2	186.	
83	44.3	21534.	105.0	2.372	257.8	.1652	-37.8			573.6	2.0	220.	
84	42.4	21836.	104.1	2.455	254.8	.1688	-37.4			581.8	2.2	208.	
85	40.4	22172.	103.1	2.553	252.3	.1728	-37.4			589.9	3.8	188.	
86	39.1	22394.	101.7	2.601	248.9	.1753	-37.4			595.4	3.1	173.	
87	37.7	22651.	98.8	2.623	242.0	.1783	-37.4			601.7	1.8	98.	
88	36.5	22869.	97.2	2.663	237.8	.1807	-37.2			607.5	1.9	97.	
89	35.2	23123.	95.6	2.717	234.0	.1835	-37.2			613.9	1.7	198.	
90	33.9	23374.	92.7	2.733	227.2	.1862	-37.5			619.7	2.4	211.	
91	32.4	23695.	86.8	2.681	212.7	.1895	-37.4			628.3	6.0	336.	
92	31.1	23978.	83.1	2.675	203.7	.1923	-37.4			635.7	2.0	182.	
93	29.8	24259.	80.2	2.686	196.2	.1949	-37.1			643.9	9.9	173.	
94	28.8	24504.	79.1	2.745	193.8	.1971	-37.5			649.3	2.1	217.	
95	27.8	24749.	76.3	2.744	186.3	.1993	-36.7			658.2	2.2	211.	
96	26.8	24993.	70.7	2.634	172.5	.2014	-36.4			665.6	2.7	167.	
97	26.2	25167.	68.3	2.610	166.4	.2027	-36.2			671.1	1.2	155.	
98	25.1	25445.	66.7	2.654	162.0	.2048	-35.2			681.5	.9	251.	
99	24.2	25723.	63.2	2.617	153.8	.2069	-35.9			687.4	1.1	265.	
100	23.5	25931.	61.2	2.611	149.0	.2084	-35.9			693.3	2.5	240.	
101	22.6	26173.	60.8	2.687	148.1	.2100	-35.9			700.2	4.9	213.	
102	21.8	26450.	59.8	2.750	145.8	.2119	-36.0			707.8	6.1	198.	
103	20.8	26760.	59.0	2.837	143.8	.2140	-36.2			716.5	5.4	186.	
104	20.1	27002.	58.7	2.923	143.0	.2156	-35.9			724.5	5.7	175.	

STATION: SOUTH POLE LAUNCH DATE: 26 JAN 89 204 Z ECC SONDE: 4A4392

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	19.3	27279.	58.0	3.006	140.8	.2175	-35.2			734.9	5.8	178.
106	18.7	27488.	58.0	3.098	140.2	.2188	-34.0			744.9	2.8	107.
107	18.1	27734.	59.2	3.273	142.0	.2204	-32.4			757.4	1.9	90.
108	17.4	28017.	58.4	3.361	139.5	.2223	-31.4			769.5	3.5	173.
109	16.8	28265.	57.4	3.416	137.2	.2238	-31.8			776.0	1.8	165.
110	16.2	28514.	55.8	3.440	133.4	.2254	-31.9			783.4	6.4	45.
111	15.6	28764.	55.3	3.533	132.3	.2270	-32.0			790.9	2.6	156.
112	15.2	28979.	54.9	3.614	131.4	.2283	-31.9			798.3	9.3	202.
113	14.4	29340.	54.2	3.756	128.8	.2305	-30.4			814.9	2.1	329.
114	13.9	29596.	53.2	3.822	125.9	.2320	-29.3			827.3	4.7	329.
115	13.6	29780.	52.4	3.862	124.2	.2331	-29.5			832.5	7.3	125.
116	13.0	30076.	51.2	3.934	121.1	.2348	-29.1			843.8	9.2	108.
117	12.5	30338.	50.5	4.026	118.9	.2362	-28.2			855.9	1.6	136.
118	12.1	30602.	48.3	3.994	113.4	.2376	-27.3			868.2	4.0	194.
119	11.6	30908.	48.0	4.141	112.4	.2393	-26.9			880.2	2.6	40.
120	11.1	31217.	47.2	4.252	110.3	.2408	-26.2			893.4	4.2	350.
121	10.6	31530.	45.8	4.309	106.7	.2424	-25.6			906.9	4.6	242.
122	10.2	31847.	44.1	4.333	103.0	.2440	-25.6			918.3	5.0	182.
123	9.8	32127.	43.1	4.404	100.4	.2453	-25.4			929.0	1.9	88.
124	9.4	32410.	43.2	4.587	100.6	.2466	-25.0			940.9	3.6	352.
125	9.1	32697.	41.7	4.610	96.7	.2480	-24.2			954.7	2.0	338.
126	8.9	32864.	39.1	4.422	90.3	.2487	-23.2			965.0	2.6	225.
127	8.6	33074.	39.0	4.539	90.1	.2496	-22.9			974.0	2.7	212.
128	8.4	33243.	38.2	4.552	88.2	.2503	-22.6			981.5	.6	171.
129	8.3	33371.	37.9	4.593	87.9	.2508	-24.0			981.1	1.1	338.
130	8.1	33499.	37.1	4.579	85.5	.2513	-22.6			991.3	2.5	335.
131	8.0	33629.	36.2	4.547	83.3	.2518	-22.0			999.0	2.5	335.

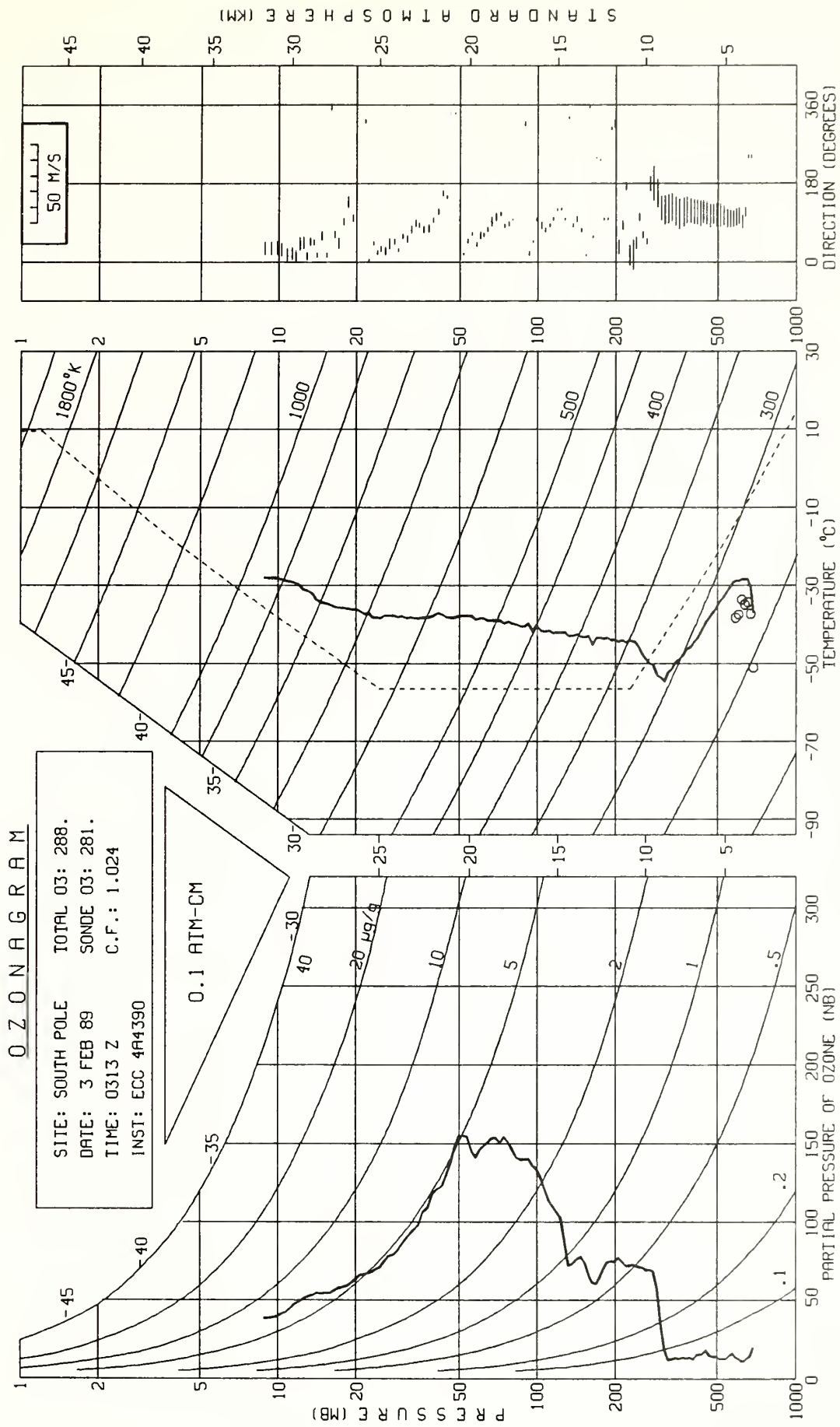
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
12.1	22.0	83.2	125.7	114.2	64.1	47.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110126018902	00280	99	.996	ECC	TOTAL O3 FROM SONDE DATA 281
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110226018902	691	17-32		500	12-35272 2 300 16-55265 7 200 74-43244 8
1110326018902	150110	-41204	6	100122-40222	4 70143-37228 3 50124-38169 3
1110426018902	30	81-37174	920.0	59-36175	610.0 44-26139 4 673 11-27342 7
1110526018902	657	12-29342	7	624 12-27316	7 265 65-50256 8 239 61-46229 6
1110626018902	172	74-42250	5	167 89-41242	6 140 97-41216 5 131111-41246 5
1110726018902	122100	-41231	5	117115-41235	5 82126-39180 3 66153-38202 3
1110826018902	64144	-37213	3	53145-37199	2 44105-38220 223.5 61-36240 3
1110926018902	17.4	58-31173	415.2	55-32202	9 8.0 36-22335 3



STATION: SOUTH POLE LAUNCH DATE: 3 FEB 89 313 Z ECC SONDE: 4A4390
 SURFACE CONDITIONS: PRESSURE 686.0 MB, TEMPERATURE -37.2 C, HUMIDITY 21.8 %
 CAL DATA: AIR TEMP 30.0 C AT 73.3 ORD; HUM 33.0 % AT 77.9 ORD; TBOX 23.5 C AT 71.0 ORD;
 O3 ORD ZERO 29.1, BKGND 29.8, CAL 64.0; O3 BKGND 0.105 MICROAMP; FLOW RATE 27.2 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 288.; SONDE TOTAL O3 281.; C.F. 1.024

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	686.0	2835.	20.0	.029	48.7	.0000	-37.2	-51.3	21.8	262.8		
1	670.0	3000.	14.3	.021	34.2	.0003	-30.8	-37.5	52.5	271.7	2.6	242.
2	654.0	3173.	13.2	.020	31.2	.0006	-28.6	-34.5	57.4	276.1	2.6	242.
3	637.0	3361.	11.3	.018	26.5	.0009	-28.6	-35.1	54.1	278.2	5.9	114.
4	620.0	3555.	11.3	.018	26.7	.0011	-28.6	-33.9	61.1	280.4	8.4	92.
5	603.0	3754.	12.7	.021	30.1	.0014	-29.0	-37.7	43.2	282.1	10.0	105.
6	588.0	3934.	13.7	.023	32.5	.0016	-29.0	-38.5	40.1	284.2	11.1	102.
7	573.0	4119.	16.1	.028	38.1	.0019	-29.4			285.8	10.2	99.
8	560.0	4283.	15.0	.027	35.9	.0022	-30.6			286.3	11.1	99.
9	543.0	4501.	12.7	.023	30.4	.0025	-31.9			287.3	11.7	100.
10	527.0	4712.	12.7	.024	30.6	.0028	-33.2			288.1	12.1	106.
11	511.0	4928.	12.7	.025	30.6	.0031	-34.3			289.4	14.9	107.
12	495.0	5150.	14.0	.028	34.2	.0035	-35.9			290.1	14.9	108.
13	480.0	5363.	13.9	.029	34.1	.0038	-37.2			291.0	12.4	110.
14	467.0	5552.	14.7	.032	36.1	.0041	-38.3			292.0	14.8	106.
15	453.0	5761.	18.4	.041	45.5	.0045	-39.4			293.2	14.7	112.
16	440.0	5960.	15.8	.036	39.2	.0049	-41.1			293.4	13.9	115.
17	430.0	6116.	15.4	.036	38.4	.0051	-42.4			293.7	16.0	112.
18	417.0	6323.	15.3	.037	38.4	.0055	-43.9			294.3	15.6	115.
19	405.0	6518.	12.5	.031	31.6	.0058	-44.8			295.7	15.5	115.
20	393.0	6719.	13.4	.034	34.1	.0061	-46.1			296.6	15.5	118.
21	380.0	6942.	13.0	.034	33.1	.0065	-46.5			299.9	16.9	119.
22	369.0	7137.	13.4	.036	34.3	.0068	-48.2			299.1	18.2	114.
23	356.0	7372.	12.9	.036	33.2	.0072	-49.1			300.9	19.0	110.
24	344.0	7597.	13.3	.039	34.4	.0075	-50.0			302.7	17.7	116.
25	333.0	7809.	12.4	.037	32.3	.0079	-51.7			303.2	17.5	125.
26	322.0	8026.	12.4	.038	32.6	.0082	-52.5			305.1	18.4	121.
27	312.0	8229.	18.5	.059	48.9	.0085	-54.8			304.5	18.0	119.
28	302.0	8438.	35.5	.118	93.6	.0091	-53.9			308.7	15.5	123.
29	292.0	8654.	57.1	.196	150.1	.0102	-53.3			312.6	18.2	158.
30	282.0	8880.	68.7	.244	178.1	.0118	-50.6			319.5	21.9	180.
31	273.0	9092.	69.4	.254	179.7	.0136	-50.2			323.1	9.3	179.
32	264.0	9311.	69.3	.263	178.6	.0154	-49.1			327.8	3.3	47.
33	256.0	9514.	70.8	.277	181.6	.0170	-47.9			332.4	4.1	62.
34	248.0	9724.	71.3	.287	181.2	.0188	-46.2			338.0	5.0	103.
35	240.0	9943.	71.9	.299	181.6	.0206	-44.8			343.4	7.5	43.
36	234.0	10112.	72.6	.310	183.2	.0220	-44.5			346.3	19.1	16.
37	227.0	10315.	72.2	.318	182.1	.0237	-44.3			349.5	13.1	15.
38	220.0	10525.	72.0	.327	181.8	.0255	-44.8			352.0	4.9	174.
39	213.0	10742.	74.7	.351	188.5	.0274	-44.3			355.9	5.7	84.
40	205.0	10998.	77.1	.376	194.7	.0296	-44.6			359.4	8.8	34.
41	198.7	11207.	74.5	.375	188.0	.0315	-44.1			363.5	4.6	317.
42	192.4	11423.	74.8	.389	188.8	.0334	-44.2			366.7	2.0	306.
43	186.2	11643.	74.4	.400	187.3	.0353	-43.6			371.0	1.4	98.
44	180.0	11871.	70.1	.390	176.6	.0372	-43.8			374.4	1.5	98.
45	174.1	12095.	64.7	.372	162.9	.0390	-43.6			378.2	.7	234.
46	168.8	12303.	60.7	.360	152.7	.0406	-43.6			381.6	.8	239.
47	163.3	12525.	61.2	.375	155.2	.0421	-45.3			382.3	1.4	57.
48	158.0	12746.	65.7	.416	165.0	.0437	-43.2			389.6	1.4	356.
49	152.8	12971.	73.7	.482	185.3	.0455	-43.4			393.1	1.4	15.

STATION: SOUTH POLE			LAUNCH DATE: 3 FEB 89 313 Z					ECC SONDE: 4A4390				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	147.3	13218.	78.1	.530	196.4	.0477	-43.4			397.2	2.2	72.
51	142.0	13465.	76.1	.536	190.5	.0499	-42.8			402.4	3.5	98.
52	136.6	13726.	73.2	.536	183.6	.0522	-43.1			406.3	2.0	84.
53	131.8	13967.	72.0	.546	180.5	.0542	-43.1			410.5	.6	331.
54	127.6	14186.	85.9	.673	214.9	.0561	-42.2			415.8	.9	98.
55	123.2	14423.	102.5	.832	256.1	.0586	-42.2			420.0	1.2	121.
56	119.0	14658.	106.2	.892	265.6	.0614	-42.2			424.2	1.2	120.
57	114.8	14901.	109.8	.957	274.9	.0644	-42.4			428.3	2.2	98.
58	111.0	15129.	113.6	1.024	283.7	.0673	-41.8			433.5	2.1	84.
59	107.2	15364.	120.4	1.123	300.6	.0705	-42.0			437.6	2.4	73.
60	103.5	15602.	127.9	1.235	319.2	.0738	-41.8			442.3	4.3	84.
61	99.3	15884.	134.0	1.350	332.2	.0781	-40.3			450.4	1.4	97.
62	96.0	16114.	136.1	1.417	339.7	.0816	-42.0			451.6	.6	46.
63	92.8	16344.	140.1	1.510	346.8	.0853	-39.9			460.1	2.5	19.
64	89.6	16584.	139.8	1.561	347.2	.0892	-40.6			463.3	2.3	317.
65	86.4	16831.	139.7	1.617	346.8	.0932	-40.6			468.2	.2	277.
66	83.2	17089.	141.0	1.694	349.2	.0973	-40.2			474.1	.2	277.
67	80.2	17339.	146.6	1.828	363.0	.1014	-40.0			479.4	.6	97.
68	77.5	17573.	151.0	1.948	373.0	.1053	-39.5			485.2	2.8	87.
69	74.8	17816.	154.3	2.063	382.2	.1095	-40.0			489.0	2.0	83.
70	72.0	18077.	150.4	2.089	371.0	.1141	-39.2			496.1	2.2	110.
71	69.3	18339.	153.8	2.219	379.5	.1187	-39.2			501.5	4.9	103.
72	66.5	18621.	153.1	2.303	378.0	.1236	-39.2			507.5	5.7	92.
73	64.2	18862.	149.9	2.334	369.9	.1278	-39.2			512.6	2.7	75.
74	62.0	19102.	148.0	2.388	364.3	.1320	-38.6			519.2	2.7	62.
75	60.0	19327.	145.9	2.431	359.1	.1358	-38.6			524.1	4.5	61.
76	57.8	19583.	141.3	2.444	348.2	.1400	-39.0			528.8	2.5	40.
77	55.8	19825.	145.4	2.605	356.9	.1439	-38.0			536.3	1.9	64.
78	53.6	20103.	154.5	2.882	379.0	.1486	-37.9			542.9	2.8	48.
79	51.6	20365.	154.8	3.000	379.8	.1532	-37.9			548.8	1.6	18.
80	49.7	20623.	154.6	3.110	379.6	.1577	-38.0			554.4	1.4	96.
81	47.9	20877.	147.2	3.073	362.1	.1621	-38.4			559.3	.6	341.
82	46.3	21111.	137.7	2.974	338.6	.1659	-38.4			564.7	.6	340.
83	44.6	21368.	129.7	2.908	318.8	.1699	-38.3			571.1	1.9	149.
84	43.0	21619.	122.8	2.857	301.3	.1735	-37.7			578.5	3.0	158.
85	41.3	21898.	121.1	2.932	296.6	.1774	-37.3			586.2	3.2	115.
86	39.6	22188.	117.9	2.978	289.5	.1814	-38.0			591.6	3.0	96.
87	38.0	22472.	108.9	2.866	268.0	.1851	-38.4			597.5	4.8	76.
88	36.3	22786.	106.0	2.919	260.5	.1889	-38.4			605.4	4.3	74.
89	35.0	23037.	98.0	2.799	241.2	.1919	-38.6			611.4	3.0	85.
90	33.8	23277.	95.7	2.832	235.7	.1946	-38.6			617.5	4.4	89.
91	32.5	23546.	92.6	2.851	227.9	.1975	-38.3			625.2	4.6	75.
92	31.4	23783.	89.9	2.863	221.2	.2000	-38.6			630.7	4.0	53.
93	30.2	24051.	86.0	2.847	211.3	.2027	-38.1			638.8	2.8	59.
94	29.0	24330.	81.7	2.817	201.0	.2054	-38.3			645.9	1.8	27.
95	28.0	24572.	79.2	2.830	194.4	.2076	-37.9			653.5	3.7	46.
96	26.7	24899.	78.2	2.929	191.8	.2105	-37.9			662.5	6.1	40.
97	25.8	25136.	74.9	2.905	183.8	.2126	-37.9			669.0	4.7	24.
98	24.8	25408.	71.1	2.869	175.2	.2149	-38.6			674.6	3.1	30.
99	24.0	25633.	70.1	2.922	172.4	.2167	-38.4			681.4	2.9	21.
100	23.2	25866.	68.6	2.956	168.8	.2186	-38.4			688.0	2.2	43.
101	22.3	26139.	67.4	3.021	164.7	.2207	-37.2			699.4	2.2	3.
102	21.6	26359.	66.6	3.085	163.2	.2224	-37.5			705.0	2.2	323.
103	20.8	26620.	66.2	3.184	162.0	.2244	-36.9			714.3	.4	93.
104	20.0	26892.	63.7	3.184	155.1	.2264	-36.3			724.4	1.5	115.

STATION: SOUTH POLE			LAUNCH DATE: 3 FEB 89 313 Z				ECC SONDE: 4A4390						
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATCMC	C	C	%	K	M/S	DEG	
105	19.3	27139.	61.7	3.198	150.6	.2281	-36.4			731.4	4.0	101.	
106	18.5	27433.	59.4	3.210	144.7	.2302	-36.1			741.1	7.4	137.	
107	17.8	27700.	58.4	3.278	142.0	.2319	-36.0			749.8	4.5	93.	
108	17.0	28020.	57.6	3.390	140.1	.2341	-35.9			760.1	6.7	43.	
109	16.4	28270.	56.2	3.427	136.6	.2357	-35.6			768.8	4.8	64.	
110	15.9	28485.	54.6	3.432	132.3	.2370	-35.2			776.9	4.1	355.	
111	15.3	28754.	54.6	3.566	132.2	.2387	-34.8			786.9	3.0	16.	
112	14.6	29081.	54.4	3.723	131.7	.2407	-34.5			798.3	5.5	60.	
113	14.0	29375.	54.5	3.890	131.4	.2425	-33.9			810.2	3.0	16.	
114	13.6	29578.	53.3	3.922	127.9	.2437	-32.5			821.5	3.2	45.	
115	13.2	29789.	52.9	4.010	126.7	.2449	-31.9			830.8	5.0	47.	
116	12.8	30007.	52.0	4.063	124.4	.2462	-31.5			839.5	5.5	14.	
117	12.4	30231.	50.9	4.103	121.5	.2475	-31.2			848.1	7.4	44.	
118	12.0	30464.	49.1	4.095	116.6	.2488	-29.9			860.7	8.0	42.	
119	11.6	30706.	47.6	4.104	112.7	.2501	-29.6			870.0	6.8	14.	
120	11.2	30957.	45.6	4.067	107.9	.2514	-29.3			880.2	7.7	19.	
121	10.7	31283.	42.7	3.990	100.8	.2530	-29.0			892.8	8.2	15.	
122	10.2	31626.	41.2	4.035	97.2	.2546	-28.6			906.5	8.4	28.	
123	9.8	31898.	39.5	4.024	93.3	.2558	-28.3			917.4	8.2	32.	
124	9.3	32288.	38.9	4.183	91.6	.2575	-28.3			931.8	8.3	31.	
125	8.8	32684.	38.6	4.386	91.0	.2591	-28.2			947.1	8.3	31.	

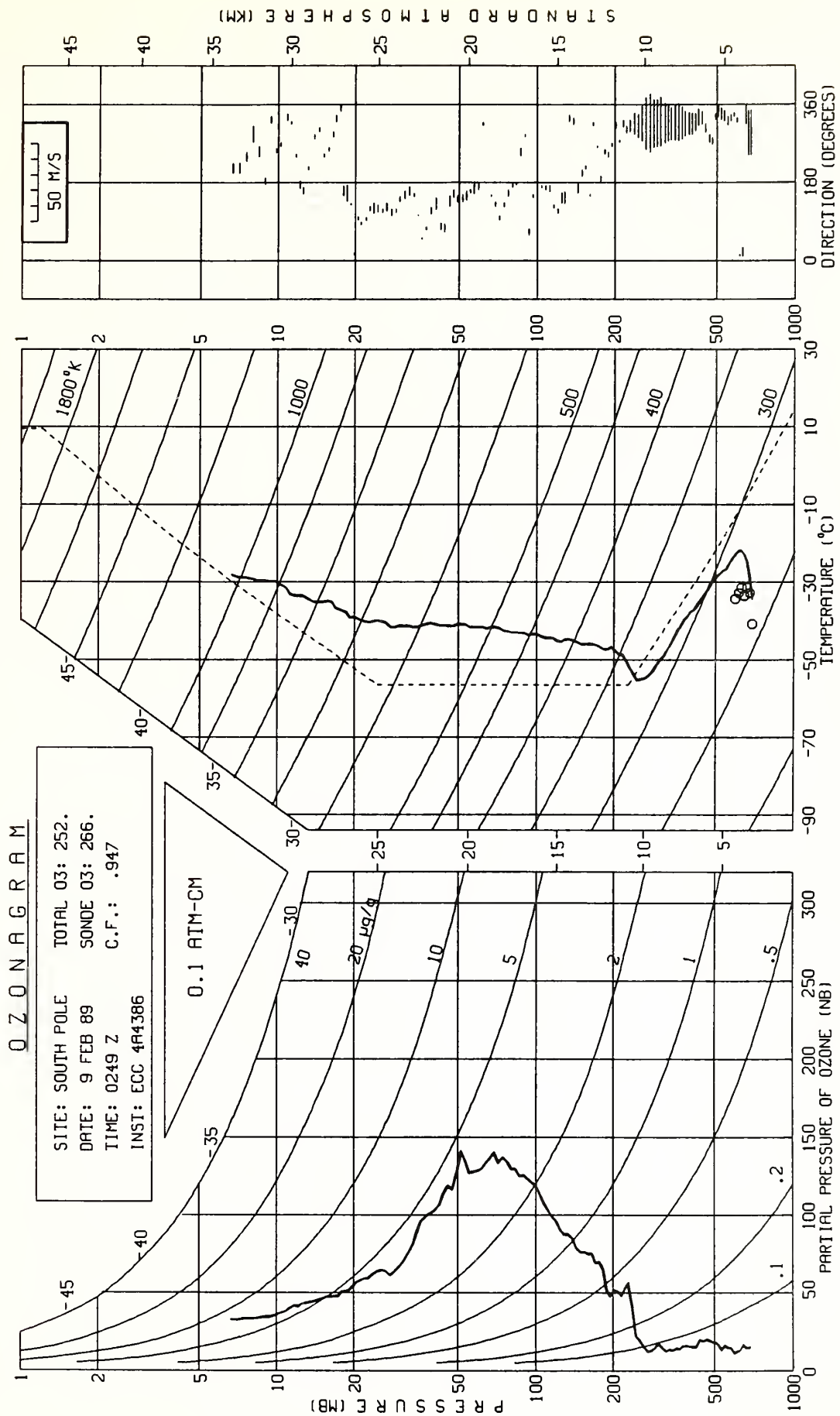
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
13.5	27.4	71.7	134.2	126.6	68.4	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX XP T CORR	COMMENTS
1110103028903	00288 991.024	ECC TOTAL O3 FROM SONDE DATA 281
ISNNYYMMJJGG	PPPP P3TTTDDDDFFPPPP	P3TTTDDDDFFPPPP P3TTTDDDDFFPPPP P3TTTDDDDFFPPPP
1110203028903	686 20-37	500 14-35108 15 300 40-54130 16 200 75-44258 5
1110303028903	150 76-43 44	2 100133-41 95 2 70153-39105 4 50155-38 83 1
1110403028903	30 85-38 54	320.0 64-36115 210.0 40-28 30 8 670 14-31242 3
1110503028903	654 13-29242	3 573 16-29 99 10 312 19-55119 18 282 69-51180 22
1110603028903	240 72-45 43	8 169 61-44239 1 163 61-45 57 1 132 72-43331 1
1110703028903	123102-42121	1 96136-42 46 1 93140-40 19 3 58141-39 40 3
1110803028903	54154-38 48	3 43123-38158 314.6 54-35 60 6 8.8 39-28 31 8



STATION: SOUTH POLE LAUNCH DATE: 9 FEB 89 249 Z ECC SONDE: 4A4386
 SURFACE CONDITIONS: PRESSURE 692.8 MB, TEMPERATURE -34.6 C, HUMIDITY 52.7 %
 CAL DATA: AIR TEMP 30.0 C AT 73.2 ORD; HUM 33.0 % AT 78.0 ORD; TBOX 24.7 C AT 71.7 ORD;
 O3 ORD ZERO 27.8, BKGND 28.5, CAL 63.5; O3 BKGND 0.103 MICROAMP; FLOW RATE 27.5 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 252.; SONDE TOTAL O3 266.; C.F. .947

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	692.8	2835.	15.1	.022	36.6	.0000	-34.6	-41.0	52.7	264.9		
1	678.0	2988.	14.7	.022	34.8	.0003	-29.4	-33.0	72.3	272.3	28.4	295.
2	662.0	3160.	14.7	.022	34.3	.0005	-25.1	-31.5	55.9	279.1	28.4	295.
3	646.0	3338.	16.6	.026	38.3	.0008	-23.1	-33.8	37.3	283.3	12.3	338.
4	630.0	3522.	12.9	.020	29.5	.0011	-22.2	-31.7	42.2	286.4	5.4	20.
5	614.0	3711.	12.4	.020	28.5	.0014	-22.2	-33.0	37.1	288.5	.9	12.
6	597.0	3917.	11.4	.019	26.2	.0016	-23.1	-34.5	34.8	289.8	2.5	324.
7	580.0	4129.	14.8	.025	34.4	.0019	-24.1			290.9	2.3	337.
8	565.0	4319.	14.8	.026	34.5	.0022	-25.3			291.7	4.0	329.
9	550.0	4514.	16.3	.030	38.1	.0025	-26.8			292.3	5.6	323.
10	535.0	4713.	13.4	.025	31.7	.0029	-27.3			293.9	6.6	334.
11	520.0	4918.	16.3	.031	38.4	.0032	-28.0			295.5	7.7	339.
12	507.0	5099.	17.9	.035	42.1	.0035	-28.8			296.7	7.1	346.
13	493.0	5300.	18.3	.037	43.3	.0039	-29.3			298.5	3.7	332.
14	480.0	5490.	19.2	.040	45.7	.0043	-30.6			299.1	4.4	277.
15	467.0	5684.	20.1	.043	48.1	.0047	-32.1			299.7	5.2	282.
16	452.0	5914.	18.8	.042	45.3	.0052	-33.4			300.8	5.7	306.
17	438.0	6135.	19.7	.045	47.7	.0057	-34.7			301.9	8.3	330.
18	425.0	6344.	15.1	.036	36.8	.0061	-36.1			302.8	10.3	331.
19	413.0	6543.	15.1	.037	37.1	.0065	-37.3			303.7	11.3	320.
20	400.0	6763.	15.6	.039	38.4	.0069	-37.9			305.6	13.0	316.
21	389.0	6955.	16.1	.041	39.8	.0072	-39.0			306.6	14.0	317.
22	377.0	7169.	15.7	.042	38.9	.0076	-40.1			307.9	16.1	316.
23	366.0	7371.	13.8	.038	34.6	.0079	-41.5			308.7	20.3	318.
24	355.0	7578.	14.3	.040	35.7	.0083	-42.7			309.8	24.1	321.
25	344.0	7789.	13.0	.038	32.7	.0086	-44.6			310.1	22.5	319.
26	333.0	8006.	13.4	.040	34.4	.0089	-46.4			310.4	20.7	316.
27	323.0	8208.	12.5	.039	32.0	.0093	-47.9			311.1	22.8	317.
28	314.0	8393.	14.4	.046	37.2	.0095	-49.4			311.6	25.7	318.
29	303.0	8627.	17.7	.058	45.8	.0100	-50.4			313.3	31.4	321.
30	293.0	8845.	14.5	.049	37.8	.0104	-51.7			314.5	30.3	318.
31	285.0	9024.	13.1	.046	34.2	.0107	-53.1			315.0	30.8	317.
32	275.0	9254.	12.1	.044	32.1	.0111	-54.3			316.4	37.4	318.
33	265.0	9491.	15.3	.058	40.7	.0114	-55.0			318.8	33.2	317.
34	256.0	9711.	19.5	.076	51.6	.0119	-55.2			321.8	22.3	316.
35	247.0	9940.	22.5	.091	59.9	.0124	-55.5			324.6	15.2	311.
36	239.0	10150.	40.3	.169	106.3	.0131	-54.0			329.8	13.5	317.
37	230.0	10398.	56.1	.244	146.4	.0145	-52.0			336.6	7.4	311.
38	223.0	10599.	52.8	.237	136.9	.0158	-50.4			341.9	4.4	303.
39	216.0	10807.	48.3	.224	124.3	.0171	-48.9			347.4	4.3	317.
40	209.0	11024.	51.2	.245	131.7	.0184	-48.8			350.9	1.3	276.
41	202.0	11248.	51.6	.255	132.2	.0197	-47.8			356.0	3.4	313.
42	194.7	11492.	47.9	.246	122.2	.0212	-47.0			360.9	2.3	267.
43	188.5	11706.	52.0	.276	133.0	.0224	-47.5			363.6	3.2	245.
44	182.4	11923.	65.3	.358	167.1	.0238	-47.5			367.0	3.2	251.
45	176.2	12152.	69.9	.397	178.4	.0256	-47.0			371.4	3.4	189.
46	170.2	12382.	69.5	.408	177.1	.0275	-46.4			376.0	1.1	263.
47	164.8	12596.	75.3	.457	191.6	.0293	-46.3			379.7	2.2	316.
48	159.2	12826.	75.0	.471	190.7	.0313	-46.2			383.8	.8	150.
49	153.6	13064.	76.3	.497	194.4	.0334	-46.3			387.5	1.7	215.

STATION: SOUTH POLE				LAUNCH DATE: 9 FEB 89 249 Z				ECC SONDE: 4A4386				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	148.3	13297.	76.1	.513	193.8	.0355	-46.3			391.4	4.0	202.
51	143.2	13530.	78.9	.551	200.2	.0376	-45.7			396.3	5.5	166.
52	138.0	13777.	84.9	.615	215.1	.0399	-45.3			401.3	4.5	322.
53	133.0	14023.	87.7	.659	221.6	.0424	-44.9			406.3	4.5	329.
54	128.0	14279.	87.7	.685	222.0	.0451	-45.1			410.2	7.6	145.
55	124.5	14464.	90.2	.725	228.8	.0470	-45.6			412.7	6.3	144.
56	120.1	14704.	95.7	.797	242.8	.0496	-45.4			417.3	2.7	114.
57	116.0	14936.	98.7	.850	249.2	.0522	-44.7			422.7	2.5	125.
58	112.0	15171.	102.6	.916	259.1	.0550	-44.6			427.3	3.6	166.
59	108.0	15415.	106.8	.989	269.8	.0579	-44.6			431.7	3.1	168.
60	103.9	15674.	113.2	1.090	285.5	.0612	-44.2			437.3	1.4	170.
61	100.0	15931.	118.7	1.187	298.6	.0646	-43.6			443.2	2.0	164.
62	96.7	16156.	120.7	1.248	303.7	.0677	-43.6			447.5	2.1	149.
63	93.2	16404.	122.9	1.319	309.4	.0712	-43.9			451.7	4.0	65.
64	89.8	16654.	125.3	1.395	314.9	.0749	-43.4			457.3	1.6	289.
65	86.3	16922.	125.1	1.449	314.1	.0787	-43.3			462.9	5.1	250.
66	83.3	17160.	129.5	1.555	325.1	.0822	-43.2			467.8	1.1	176.
67	80.5	17390.	129.6	1.610	325.3	.0857	-43.2			472.4	2.5	173.
68	77.7	17629.	134.4	1.729	336.8	.0893	-42.9			477.8	4.0	156.
69	74.6	17903.	137.0	1.836	343.3	.0936	-42.7			483.7	2.8	128.
70	71.9	18153.	133.6	1.858	333.8	.0975	-42.1			490.3	2.5	98.
71	69.2	18412.	140.0	2.024	349.5	.1016	-41.8			496.3	3.0	130.
72	66.7	18661.	136.4	2.045	340.6	.1055	-41.8			501.5	1.0	149.
73	64.5	18888.	133.9	2.076	334.6	.1091	-42.2			505.5	.4	329.
74	62.0	19156.	129.7	2.092	323.6	.1132	-41.8			512.1	2.0	315.
75	59.7	19412.	128.4	2.151	320.3	.1170	-41.8			517.7	5.1	171.
76	57.3	19690.	127.7	2.229	318.7	.1211	-41.8			523.8	6.6	166.
77	55.4	19919.	127.1	2.293	317.1	.1245	-41.8			528.9	2.3	160.
78	53.5	20156.	134.5	2.515	334.9	.1280	-41.2			535.4	5.3	149.
79	51.6	20401.	140.4	2.721	349.3	.1319	-41.1			541.3	4.6	143.
80	49.5	20684.	127.8	2.582	317.9	.1363	-41.1			547.8	4.3	142.
81	47.6	20949.	116.3	2.443	290.0	.1402	-41.6			552.6	4.7	154.
82	45.9	21196.	118.4	2.580	295.1	.1435	-41.5			558.7	6.5	137.
83	44.0	21483.	113.5	2.580	282.8	.1474	-41.4			565.8	5.3	74.
84	42.4	21735.	106.6	2.514	265.6	.1507	-41.4			571.9	4.3	79.
85	40.7	22013.	102.8	2.526	255.7	.1540	-41.1			579.3	7.2	132.
86	39.0	22303.	101.0	2.590	251.1	.1575	-40.8			587.1	4.7	115.
87	37.4	22588.	98.6	2.635	245.1	.1608	-41.1			593.4	1.8	74.
88	36.0	22847.	95.7	2.659	238.3	.1637	-41.4			599.2	.5	50.
89	34.7	23096.	88.4	2.548	220.7	.1664	-41.8			604.5	.6	104.
90	33.6	23315.	81.0	2.412	202.1	.1685	-41.8			610.1	2.1	151.
91	32.3	23582.	75.5	2.336	188.0	.1710	-41.5			617.7	5.2	160.
92	31.0	23861.	70.5	2.275	175.8	.1734	-41.5			625.0	4.6	151.
93	29.6	24175.	66.0	2.229	164.4	.1759	-41.5			633.3	3.1	142.
94	28.5	24431.	63.2	2.219	157.9	.1778	-41.8			639.5	2.2	115.
95	27.4	24698.	61.4	2.239	153.1	.1798	-41.8			646.7	4.7	111.
96	26.4	24951.	64.1	2.428	159.3	.1816	-40.7			656.7	5.4	123.
97	25.5	25187.	64.8	2.540	160.7	.1833	-40.4			664.0	2.1	115.
98	24.4	25488.	63.6	2.608	157.7	.1855	-40.1			673.2	4.8	120.
99	23.5	25744.	61.7	2.627	153.1	.1874	-40.4			679.7	6.5	121.
100	22.7	25980.	59.4	2.615	147.3	.1891	-40.5			686.1	3.0	119.
101	22.0	26194.	59.3	2.694	146.9	.1905	-40.4			692.6	1.9	95.
102	21.0	26511.	57.9	2.759	143.5	.1927	-40.0			703.2	1.8	85.
103	20.5	26676.	57.2	2.790	141.4	.1938	-39.6			709.3	2.5	97.
104	19.8	26914.	53.9	2.721	133.1	.1953	-39.3			717.2	1.2	15.

STATION: SOUTH POLE LAUNCH DATE: 9 FEB 89 249 Z ECC SONDE: 4A4386

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	19.1	27160.	51.6	2.702	127.3	.1968	-39.4			724.2	1.0	129.
106	18.5	27379.	50.9	2.753	125.0	.1981	-37.9			735.5	10.0	155.
107	17.9	27607.	50.8	2.840	124.7	.1994	-37.7			743.3	6.2	161.
108	17.4	27802.	48.1	2.764	117.6	.2005	-37.3			750.6	3.8	352.
109	16.8	28045.	47.7	2.840	116.6	.2018	-36.9			759.5	4.5	328.
110	16.3	28255.	47.6	2.922	115.6	.2030	-35.4			770.8	3.0	291.
111	15.7	28516.	47.6	3.033	115.6	.2044	-35.1			780.0	2.5	257.
112	15.0	28834.	46.5	3.099	112.9	.2060	-35.4			789.3	2.0	242.
113	14.4	29118.	45.4	3.149	110.0	.2075	-35.4			798.6	2.5	303.
114	13.8	29414.	44.5	3.225	108.1	.2090	-35.4			808.4	2.8	286.
115	13.1	29778.	43.6	3.332	105.7	.2108	-34.6			823.2	2.3	213.
116	12.5	30106.	42.9	3.431	103.5	.2124	-33.7			837.6	4.7	162.
117	12.1	30334.	41.3	3.412	99.6	.2135	-33.7			845.4	5.0	175.
118	11.7	30570.	41.8	3.569	100.6	.2146	-33.7			853.6	2.0	242.
119	11.2	30876.	40.1	3.584	96.7	.2160	-33.4			865.3	1.8	318.
120	10.8	31133.	38.1	3.524	91.1	.2171	-31.7			880.6	4.1	331.
121	10.2	31538.	36.8	3.611	87.7	.2189	-30.8			898.5	2.3	268.
122	9.8	31829.	35.2	3.598	83.6	.2200	-30.0			912.1	2.5	254.
123	9.3	32180.	34.5	3.698	81.8	.2214	-30.0			925.0	4.3	325.
124	8.9	32541.	34.6	3.900	82.1	.2228	-29.7			939.5	4.5	183.
125	8.4	32921.	33.8	4.024	80.3	.2242	-29.7			953.9	6.3	252.
126	8.0	33314.	33.5	4.216	79.4	.2257	-29.4			970.1	10.2	292.
127	7.5	33730.	33.6	4.481	79.5	.2272	-29.0			988.0	5.8	240.
128	7.1	34172.	32.9	4.660	77.7	.2288	-29.0			1005.6	5.9	213.
129	6.7	34591.	32.9	4.955	77.7	.2303	-28.4			1025.3	5.9	213.

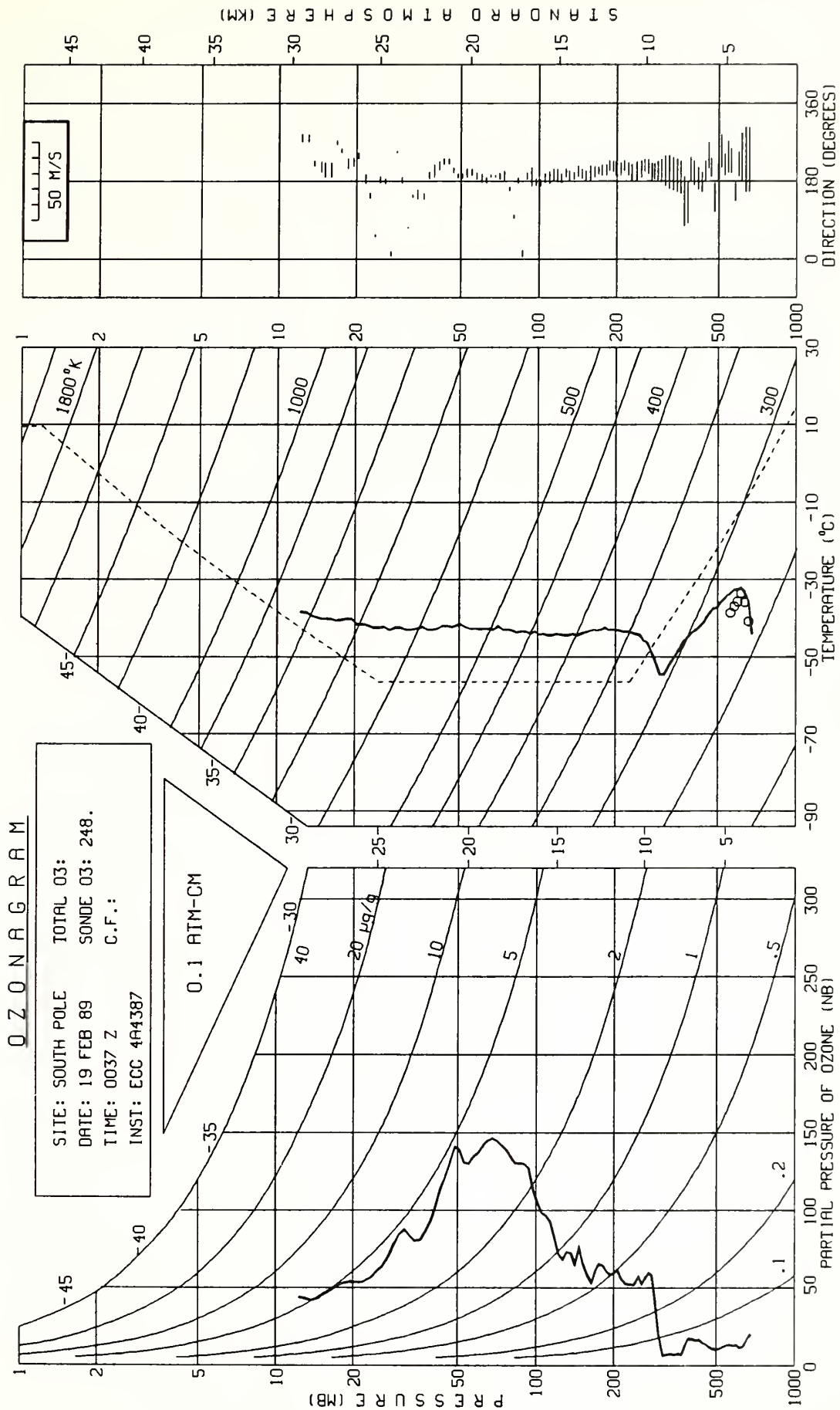
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
14.5	15.6	63.0	120.0	110.6	57.8	39.4	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110109028903	00252	99	.947	ECC	TOTAL O3 FROM SONDE DATA 266
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110209028903	693	15-35		500	18-29339 5 300 17-51320 31 200 51-48301 3
1110309028903	150	76-46206	3	100119-44164	2 70138-42120 3 50131-41142 4
1110409028903	30	67-42145	420.0	55-39 39	210.0 36-30261 2 7.0 33-29213 6
1110509028903	662	15-25295	28	630 13-22 20	5 275 12-54318 37 247 23-56311 15
1110609028903	230	56-52311	7	216 48-49317	4 189 52-48245 3 176 70-47189 3
1110709028903	60128-42171	5	55127-42160	2	52140-41143 5 48116-42154 5
1110809028903	36	96-41 50	116.3	48-35291	311.2 40-33318 2 6.7 33-28213 6



STATION: SOUTH POLE LAUNCH DATE: 19 FEB 89 37 Z ECC SONDE: 4A4387
 SURFACE CONDITIONS: PRESSURE 678.2 MB, TEMPERATURE -44.3 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.2 ORD; HUM 33.0 % AT 78.0 ORD; TBOX 23.0 C AT 70.8 ORD;
 O3 ORD ZERO 19.5, BKGND 20.2, CAL 51.0; O3 BKGND 0.117 MICROAMP; FLOW RATE 25.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 248.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	678.2	2835.	20.2	.030	50.9	.0000	-44.3			255.7		
1	657.0	3052.	17.2	.026	41.9	.0005	-35.9	-41.1	59.8	267.5	41.6	230.
2	636.0	3279.	12.4	.019	30.0	.0009	-33.7	-36.1	79.8	272.6	41.6	230.
3	615.0	3515.	11.5	.019	27.6	.0012	-32.3	-33.8	88.4	276.7	30.4	236.
4	597.0	3724.	13.4	.022	32.2	.0015	-32.7	-35.9	74.8	278.6	15.7	220.
5	578.0	3952.	12.9	.022	31.0	.0018	-32.9	-37.2	66.0	281.0	11.5	156.
6	560.0	4174.	13.4	.024	32.2	.0021	-33.9	-38.8	62.3	282.3	15.4	227.
7	545.0	4364.	12.8	.023	31.0	.0024	-34.3			284.1	20.4	236.
8	527.0	4599.	11.9	.023	28.8	.0028	-35.4			285.5	13.6	219.
9	512.0	4799.	10.8	.021	26.4	.0030	-36.2			286.9	21.4	249.
10	498.0	4991.	10.4	.021	25.5	.0033	-37.5			287.6	11.9	198.
11	481.0	5231.	10.9	.023	26.7	.0036	-37.7			290.3	18.3	142.
12	467.0	5434.	12.3	.026	30.4	.0038	-38.8			291.4	11.6	212.
13	456.0	5597.	13.7	.030	33.9	.0040	-39.8			292.0	16.7	240.
14	443.0	5795.	14.7	.033	36.7	.0044	-41.1			292.9	12.2	204.
15	430.0	5997.	16.7	.039	41.6	.0047	-42.1			294.1	12.8	178.
16	417.0	6204.	16.3	.039	40.9	.0051	-43.0			295.5	14.2	187.
17	403.0	6434.	17.1	.042	43.1	.0055	-43.7			297.5	15.8	199.
18	390.0	6654.	17.2	.044	43.3	.0060	-44.6			299.1	15.4	208.
19	380.0	6827.	13.1	.034	33.2	.0063	-45.4			300.2	27.4	132.
20	368.0	7041.	7.1	.019	18.0	.0066	-46.4			301.7	32.0	134.
21	357.0	7242.	7.5	.021	19.4	.0068	-48.2			301.9	20.8	190.
22	345.0	7466.	7.1	.021	18.2	.0070	-49.7			302.9	21.2	194.
23	334.0	7678.	7.5	.022	19.5	.0072	-51.2			303.6	21.3	197.
24	322.0	7914.	7.0	.022	18.4	.0074	-52.9			304.5	21.5	202.
25	311.0	8138.	6.6	.021	17.3	.0076	-54.7			305.0	19.1	204.
26	300.0	8368.	20.7	.069	54.6	.0078	-54.8			308.0	14.6	204.
27	290.0	8586.	44.2	.152	115.4	.0085	-52.0			315.0	11.7	205.
28	282.0	8768.	58.5	.207	151.3	.0096	-50.0			320.4	10.1	203.
29	275.0	8933.	59.5	.216	152.9	.0107	-48.3			325.1	10.4	203.
30	267.0	9129.	56.8	.213	144.7	.0121	-46.4			330.6	9.4	214.
31	258.0	9356.	52.6	.204	133.7	.0136	-46.0			334.5	8.1	216.
32	250.0	9567.	57.6	.230	145.4	.0149	-44.6			339.7	10.5	208.
33	240.0	9840.	52.1	.217	131.5	.0167	-44.3			344.1	12.2	203.
34	230.0	10126.	52.3	.227	131.7	.0185	-43.9			348.9	11.0	200.
35	222.0	10364.	52.8	.238	132.9	.0199	-43.6			352.9	8.2	208.
36	214.0	10610.	56.0	.262	140.8	.0215	-43.6			356.6	6.1	215.
37	207.0	10834.	61.4	.297	154.2	.0230	-43.4			360.3	8.3	209.
38	198.7	11110.	59.1	.297	148.5	.0249	-43.2			364.9	8.5	209.
39	193.8	11278.	58.9	.304	147.9	.0261	-43.2			367.6	6.8	214.
40	187.8	11490.	60.6	.323	152.0	.0275	-43.2			370.9	6.3	216.
41	181.8	11709.	64.2	.353	160.8	.0291	-42.7			375.0	6.3	206.
42	175.7	11939.	65.4	.372	164.1	.0308	-43.2			378.0	6.5	206.
43	169.8	12169.	61.6	.363	154.8	.0325	-43.3			381.5	4.8	205.
44	163.8	12411.	53.1	.324	133.3	.0342	-43.2			385.7	6.8	202.
45	158.0	12654.	58.4	.370	146.8	.0357	-43.6			388.9	8.9	200.
46	152.0	12914.	65.6	.432	165.3	.0376	-43.9			392.8	6.7	193.
47	146.7	13152.	76.4	.521	192.6	.0395	-44.2			396.3	6.1	198.
48	141.6	13389.	65.3	.461	164.8	.0415	-44.6			399.6	6.2	203.
49	136.5	13635.	72.7	.533	183.5	.0434	-44.3			404.3	4.7	193.

STATION: SOUTH POLE			LAUNCH DATE: 19 FEB 89				37 Z	ECC	SONDE: 4A4387			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATCM	C	C	%	K	M/S	DEG
50	131.3	13895.	72.8	.554	183.8	.0457	-44.6			408.3	6.0	193.
51	126.9	14123.	68.2	.537	172.2	.0476	-44.6			412.3	5.4	199.
52	122.5	14360.	71.9	.587	181.5	.0495	-44.4			416.7	5.8	187.
53	118.0	14610.	82.5	.699	208.2	.0517	-44.3			421.5	7.8	193.
54	113.7	14859.	92.5	.814	233.6	.0541	-44.6			425.4	7.7	193.
55	109.5	15111.	96.4	.880	243.4	.0569	-44.6			430.0	7.7	188.
56	105.5	15360.	98.2	.931	247.8	.0597	-44.3			435.2	5.9	187.
57	101.5	15619.	105.1	1.035	265.4	.0627	-44.4			439.7	4.2	176.
58	97.7	15875.	111.9	1.145	281.4	.0659	-43.6			446.2	4.6	177.
59	93.7	16156.	127.2	1.358	320.8	.0697	-44.2			450.4	12.2	190.
60	90.0	16427.	129.9	1.443	326.6	.0737	-43.6			456.8	4.2	192.
61	86.5	16693.	130.2	1.505	327.6	.0778	-43.6			462.0	3.8	12.
62	83.2	16955.	130.3	1.566	328.1	.0817	-43.9			466.6	3.6	182.
63	80.1	17210.	134.2	1.675	337.2	.0857	-43.4			472.5	1.9	98.
64	77.0	17476.	138.8	1.803	348.5	.0899	-43.2			478.5	2.6	162.
65	73.8	17762.	142.0	1.924	356.6	.0945	-43.2			484.3	6.3	192.
66	70.7	18051.	144.9	2.050	362.3	.0993	-42.2			492.4	3.9	192.
67	68.0	18314.	146.3	2.151	367.3	.1037	-43.2			495.8	1.4	192.
68	65.4	18577.	145.0	2.217	363.7	.1082	-43.0			501.6	1.6	192.
69	62.8	18851.	141.7	2.256	355.3	.1127	-42.9			507.8	3.8	182.
70	60.2	19136.	137.0	2.276	343.8	.1174	-43.0			513.6	5.7	186.
71	57.7	19422.	134.5	2.331	337.3	.1220	-42.9			520.2	4.0	192.
72	55.2	19720.	129.9	2.353	325.8	.1266	-42.9			526.9	4.3	201.
73	52.8	20020.	130.6	2.473	326.9	.1311	-42.5			534.6	5.5	199.
74	50.7	20295.	139.3	2.748	347.5	.1354	-41.8			542.4	3.0	192.
75	48.7	20568.	140.6	2.887	351.2	.1398	-42.1			548.0	3.1	192.
76	46.7	20851.	130.8	2.801	327.4	.1443	-42.5			553.6	3.0	205.
77	44.9	21117.	122.0	2.717	305.1	.1483	-42.2			560.6	3.6	226.
78	43.0	21409.	113.8	2.647	284.5	.1523	-42.2			567.5	3.7	226.
79	41.3	21682.	103.7	2.511	259.9	.1558	-42.9			572.4	5.3	215.
80	39.5	21982.	93.3	2.362	234.2	.1594	-43.2			579.0	7.5	203.
81	37.7	22297.	86.4	2.292	217.0	.1628	-43.2			586.8	3.9	193.
82	36.0	22608.	81.0	2.250	202.8	.1659	-42.5			596.4	3.8	145.
83	34.2	22954.	80.4	2.351	201.5	.1691	-42.9			604.1	6.1	149.
84	32.6	23277.	84.1	2.580	211.0	.1722	-43.2			611.7	1.9	145.
85	31.3	23551.	87.7	2.802	220.1	.1748	-43.2			618.8	.8	72.
86	29.8	23882.	84.2	2.826	211.0	.1782	-42.7			628.7	4.0	182.
87	28.4	24207.	77.3	2.722	193.6	.1813	-42.7			637.4	.9	247.
88	27.0	24548.	68.9	2.552	173.0	.1843	-43.2			645.5	3.0	12.
89	25.7	24881.	63.7	2.479	159.3	.1869	-42.5			656.7	3.3	180.
90	24.6	25176.	61.0	2.480	153.0	.1891	-42.7			664.1	4.5	183.
91	23.5	25485.	57.2	2.434	143.4	.1913	-42.7			672.8	1.1	54.
92	22.5	25779.	55.3	2.458	138.3	.1932	-42.2			682.9	3.0	146.
93	21.6	26055.	53.5	2.477	133.6	.1949	-41.8			692.2	5.7	185.
94	20.3	26476.	53.7	2.645	134.0	.1976	-41.8			704.5	3.9	239.
95	19.4	26784.	53.8	2.773	133.6	.1995	-40.4			718.0	5.4	224.
96	18.5	27108.	53.4	2.886	132.5	.2014	-40.4			727.8	6.2	220.
97	17.5	27487.	51.9	2.966	129.0	.2038	-40.7			738.6	2.5	251.
98	16.8	27764.	50.0	2.976	124.2	.2054	-40.8			746.8	2.2	269.
99	16.0	28097.	47.4	2.963	117.6	.2073	-40.4			758.6	9.3	206.
100	15.1	28491.	45.4	3.007	112.7	.2094	-40.4			771.3	9.5	206.
101	14.6	28721.	43.4	2.973	107.6	.2106	-40.3			779.2	6.7	213.
102	13.7	29156.	42.0	3.066	104.0	.2128	-39.7			795.3	3.3	220.
103	13.0	29515.	43.3	3.331	106.8	.2145	-38.8			810.7	4.5	280.
104	12.3	29895.	44.0	3.577	108.4	.2164	-38.6			824.1	4.5	280.

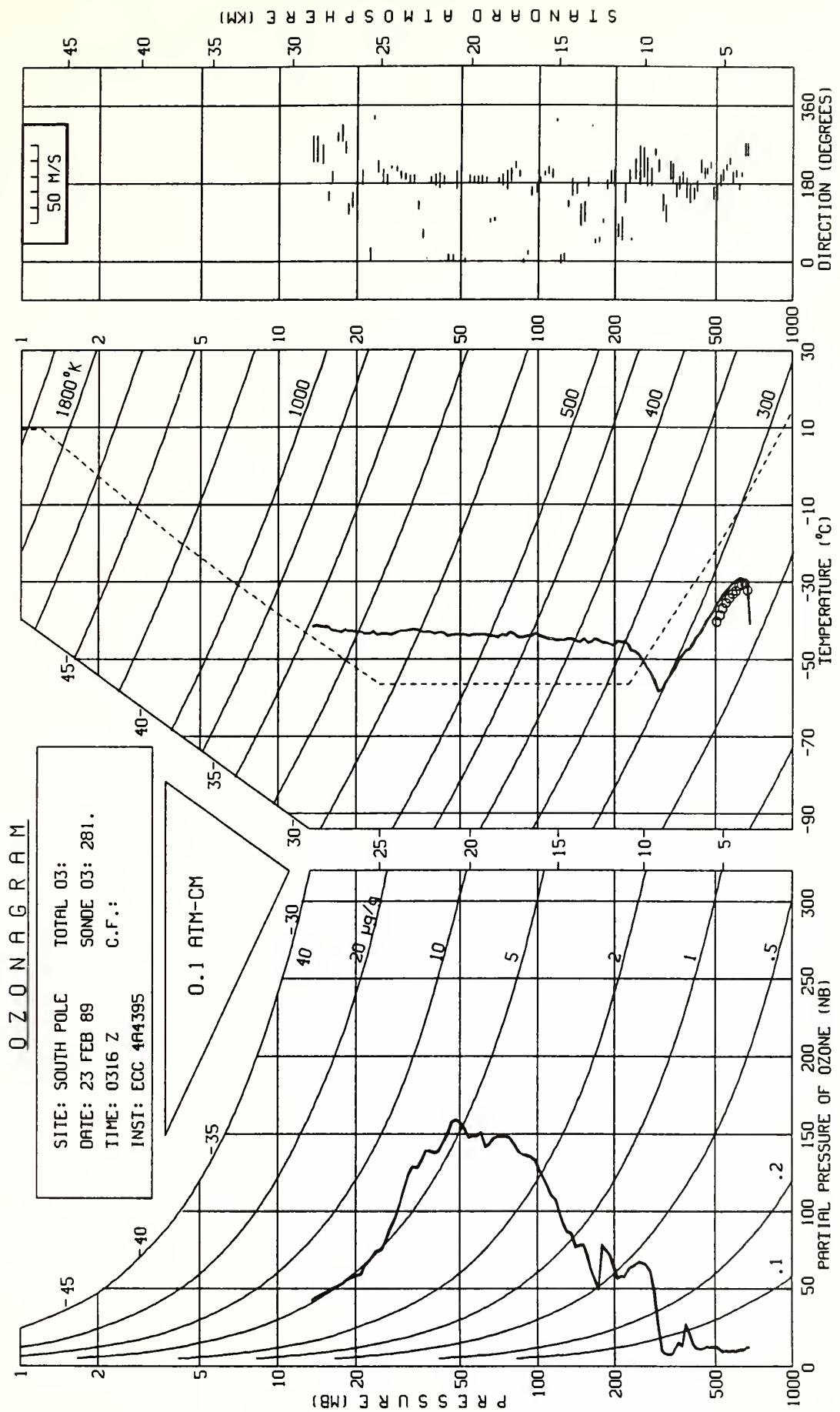
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
13.4	21.4	61.1	118.6	112.8	60.6	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110119028901			99		ECC TOTAL O3 FROM SONDE DATA 248
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110219028901	678	20-44		500	10-37205 13 300 21-55204 15 200 59-43209 8
1110319028901	150	70-44195	6	100108-44176	4 70145-42192 3 50140-42192 3
1110419028901	30	85-43167	420.0	54-41234	4 657 17-36230 42 615 12-32236 30
1110519028901	390	17-45208	15	368 7-46134	32 311 7-55204 19 282 59-50203 10
1110619028901	267	57-46214	9	176 65-43206	7 164 53-43202 7 147 76-44198 6
1110719028901	142	65-45203	6	137 73-44193	5 127 68-45199 5 114 93-45193 8
1110819028901		94127-44190	12	55130-43201	4 36 81-43145 425.7 64-43180 3
1110919028901	12.3	44-39280		5	



STATION: SOUTH POLE LAUNCH DATE: 23 FEB 89 316 Z ECC SONDE: 4A4395
 SURFACE CONDITIONS: PRESSURE 681.2 MB, TEMPERATURE -41.1 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.2 ORD; HUM 33.0 % AT 77.0 ORD; TBOX 25.0 C AT 72.0 ORD;
 O3 ORD ZERO 31.8, BKGND 32.5, CAL 67.2; O3 BKGND 0.104 MICROAMP; FLOW RATE 26.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 281.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	681.2	2835.	12.2	.018	30.3	.0000	-41.1			259.0		
1	665.0	3002.	12.2	.018	29.1	.0002	-30.1	-32.3	82.4	273.1	8.1	259.
2	650.0	3165.	10.8	.017	25.7	.0004	-29.7	-30.5	93.9	275.4	8.1	259.
3	632.0	3366.	10.4	.016	24.6	.0007	-29.3	-30.8	88.2	278.0	2.5	202.
4	617.0	3537.	10.5	.017	24.8	.0009	-29.3	-31.2	84.8	279.9	3.5	172.
5	601.0	3725.	9.5	.016	22.6	.0011	-29.7	-32.5	77.5	281.6	4.2	203.
6	582.0	3953.	9.9	.017	23.6	.0013	-30.5	-33.3	77.3	283.3	6.6	195.
7	565.0	4164.	9.5	.017	22.7	.0016	-31.5	-34.4	76.8	284.4	3.4	232.
8	548.0	4380.	10.0	.018	23.9	.0018	-32.6	-35.6	75.8	285.7	3.9	218.
9	533.0	4575.	9.5	.018	22.9	.0020	-33.7	-37.0	72.9	286.7	7.3	200.
10	520.0	4748.	10.9	.021	26.4	.0022	-34.7	-38.8	67.6	287.4	7.7	188.
11	505.0	4951.	12.3	.024	30.0	.0024	-35.9	-40.5	64.0	288.4	9.3	160.
12	490.0	5160.	12.4	.025	30.4	.0027	-37.7			288.7	7.9	158.
13	477.0	5345.	12.0	.025	29.5	.0030	-38.9			289.4	4.0	223.
14	462.0	5564.	12.5	.027	30.9	.0033	-40.3			290.4	3.8	209.
15	450.0	5743.	11.5	.026	28.7	.0035	-41.8			290.7	6.7	205.
16	437.0	5941.	11.0	.025	27.7	.0038	-43.2			291.4	8.4	221.
17	421.0	6191.	11.6	.028	29.2	.0041	-44.6			292.7	6.7	174.
18	410.0	6368.	14.5	.035	36.8	.0044	-46.2			292.9	7.5	157.
19	397.0	6582.	21.5	.054	55.1	.0048	-47.6			293.7	11.4	157.
20	385.0	6784.	26.5	.069	67.8	.0053	-47.8			296.1	12.8	170.
21	372.0	7010.	13.1	.035	33.7	.0060	-49.2			297.0	7.8	193.
22	360.0	7225.	14.9	.041	38.7	.0063	-50.4			298.2	8.7	181.
23	350.0	7408.	11.7	.033	30.7	.0066	-52.4			297.9	9.4	165.
24	340.0	7595.	7.9	.023	20.8	.0069	-53.5			298.9	12.2	204.
25	332.0	7747.	7.4	.022	19.6	.0070	-54.7			299.4	12.0	211.
26	320.0	7982.	7.9	.025	21.1	.0072	-56.1			300.5	11.1	111.
27	310.0	8183.	9.8	.032	26.4	.0074	-58.0			300.7	11.1	136.
28	299.0	8411.	28.2	.094	75.9	.0078	-58.5			303.1	7.9	221.
29	289.0	8626.	48.5	.168	128.9	.0087	-55.8			309.9	4.1	252.
30	279.0	8851.	61.5	.220	161.8	.0102	-53.7			316.0	11.6	195.
31	268.0	9111.	65.5	.244	171.0	.0121	-52.0			322.2	18.7	207.
32	260.0	9307.	66.5	.256	172.4	.0137	-50.6			327.0	19.1	229.
33	251.0	9538.	67.1	.267	172.8	.0156	-48.9			332.8	24.8	222.
34	242.0	9778.	65.3	.270	167.7	.0175	-48.2			337.4	12.8	213.
35	233.0	10028.	63.8	.274	163.5	.0194	-47.9			341.5	.9	51.
36	228.0	10172.	62.0	.272	158.0	.0205	-46.4			345.9	7.7	198.
37	220.0	10409.	57.5	.261	146.1	.0222	-45.7			350.5	11.8	156.
38	213.0	10625.	58.2	.273	147.7	.0236	-45.9			353.6	14.9	75.
39	206.0	10847.	56.8	.276	144.0	.0252	-45.6			357.4	8.2	71.
40	198.8	11084.	64.6	.325	164.8	.0268	-46.7			359.2	10.6	192.
41	192.2	11308.	71.6	.373	182.2	.0285	-46.4			363.2	8.2	195.
42	185.8	11533.	74.7	.402	189.9	.0305	-46.0			367.4	6.3	177.
43	179.2	11773.	77.9	.435	197.9	.0326	-46.0			371.2	2.2	92.
44	172.9	12012.	50.4	.291	127.7	.0346	-45.4			376.0	3.4	49.
45	167.0	12244.	56.3	.337	142.4	.0360	-45.0			380.5	2.7	45.
46	161.5	12467.	62.6	.388	159.0	.0375	-45.9			382.7	.3	313.
47	156.3	12685.	71.2	.456	180.9	.0392	-46.0			386.0	5.9	182.
48	151.1	12910.	78.4	.519	198.5	.0411	-45.0			391.5	12.7	114.
49	146.0	13140.	78.1	.535	198.4	.0432	-45.9			393.9	13.8	106.

STATION: SOUTH POLE LAUNCH DATE: 23 FEB 89 316 Z ECC SONDE: 4A4395

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
50	140.9	13376.	77.1	.547	195.5	.0454	-45.6			398.4	7.3	168.
51	135.5	13637.	85.7	.632	216.9	.0478	-45.0			403.9	11.2	171.
52	130.5	13888.	86.7	.664	219.4	.0504	-45.0			408.2	4.1	132.
53	126.2	14112.	91.8	.727	232.7	.0527	-45.3			411.6	4.9	9.
54	122.0	14338.	98.8	.810	250.2	.0551	-45.3			415.6	5.8	4.
55	117.8	14572.	107.2	.910	271.6	.0579	-45.3			419.8	1.2	326.
56	113.5	14820.	110.3	.972	279.1	.0610	-45.0			424.8	5.7	202.
57	109.3	15072.	116.0	1.061	293.4	.0643	-45.0			429.4	4.8	209.
58	105.3	15322.	121.6	1.155	307.2	.0678	-44.6			434.9	2.8	203.
59	101.5	15568.	126.9	1.250	320.0	.0713	-44.2			440.3	3.4	187.
60	98.3	15783.	132.8	1.351	334.0	.0746	-43.6			445.4	5.8	168.
61	94.2	16069.	135.0	1.433	340.3	.0790	-44.2			449.8	5.7	161.
62	90.9	16308.	135.9	1.495	342.9	.0828	-44.3			454.1	2.5	19.
63	87.5	16564.	136.5	1.560	344.8	.0868	-44.6			458.5	2.6	0.
64	84.5	16797.	138.4	1.638	349.5	.0906	-44.6			463.1	4.0	202.
65	81.5	17040.	142.9	1.753	359.8	.0945	-43.9			469.3	4.3	222.
66	78.4	17300.	147.2	1.878	369.7	.0989	-43.3			475.7	8.0	199.
67	75.4	17563.	148.4	1.968	374.1	.1034	-44.2			479.3	12.3	187.
68	72.8	17798.	148.1	2.034	373.0	.1075	-43.9			484.7	7.0	187.
69	70.2	18042.	148.1	2.110	374.2	.1117	-44.6			488.3	2.8	187.
70	67.7	18285.	147.0	2.171	371.0	.1159	-44.3			494.0	2.1	97.
71	65.0	18558.	143.1	2.202	360.9	.1205	-44.2			500.1	2.1	92.
72	62.8	18789.	141.5	2.253	356.3	.1244	-43.9			505.6	4.0	187.
73	60.4	19051.	150.8	2.497	379.8	.1288	-43.9			511.3	5.3	187.
74	58.3	19288.	148.6	2.549	374.2	.1329	-43.9			516.5	5.1	187.
75	56.2	19535.	148.6	2.644	374.3	.1372	-43.9			521.9	4.8	187.
76	54.0	19803.	147.7	2.735	372.5	.1418	-44.2			527.3	4.3	191.
77	51.9	20069.	154.0	2.967	387.9	.1465	-43.9			533.9	3.2	1.
78	50.1	20306.	157.2	3.138	395.7	.1507	-43.9			539.3	4.6	187.
79	48.2	20565.	159.1	3.301	400.6	.1555	-43.9			545.3	11.8	187.
80	46.5	20807.	157.6	3.389	397.0	.1599	-43.9			550.9	4.2	7.
81	44.8	21057.	149.4	3.335	376.7	.1645	-44.2			556.2	4.6	7.
82	43.0	21332.	144.1	3.351	362.3	.1693	-43.4			564.4	6.2	187.
83	41.3	21604.	138.5	3.354	348.0	.1738	-43.3			571.3	9.4	187.
84	39.8	21852.	137.8	3.462	346.6	.1778	-43.6			576.7	7.2	187.
85	38.4	22093.	138.8	3.615	348.4	.1817	-43.2			583.7	4.5	187.
86	37.0	22344.	139.1	3.759	349.2	.1857	-43.2			589.9	.5	7.
87	35.7	22585.	132.9	3.723	333.5	.1896	-43.2			596.0	5.9	63.
88	34.3	22854.	127.9	3.729	320.4	.1937	-42.7			603.9	5.0	129.
89	32.9	23136.	128.6	3.909	321.9	.1979	-42.5			611.9	5.9	189.
90	31.8	23365.	124.1	3.903	310.9	.2012	-42.7			617.1	5.0	190.
91	30.6	23625.	115.0	3.758	288.3	.2049	-42.9			623.6	4.0	196.
92	29.4	23895.	104.5	3.554	262.1	.2085	-42.9			630.7	4.8	199.
93	28.3	24152.	96.0	3.392	241.3	.2115	-43.4			636.1	3.1	214.
94	27.0	24468.	88.4	3.274	222.6	.2150	-43.9			643.5	1.4	217.
95	26.0	24721.	80.6	3.100	202.6	.2176	-43.6			651.3	6.5	189.
96	25.1	24958.	75.3	3.000	189.5	.2198	-43.6			657.9	8.6	197.
97	24.0	25259.	74.1	3.088	186.6	.2224	-43.9			665.5	7.3	219.
98	23.2	25487.	70.8	3.052	177.7	.2243	-43.0			674.5	2.0	332.
99	22.5	25694.	67.9	3.018	170.9	.2260	-43.6			678.8	8.8	15.
100	21.5	25999.	64.0	2.977	160.8	.2284	-43.6			687.6	.4	187.
101	20.9	26190.	59.5	2.847	149.3	.2298	-43.2			694.5	9.6	194.
102	20.0	26486.	58.6	2.930	147.1	.2319	-43.2			703.3	9.6	212.
103	19.2	26761.	57.2	2.979	143.3	.2337	-42.9			712.4	9.7	142.
104	18.5	27012.	56.1	3.032	140.6	.2354	-42.9			720.0	7.1	121.

STATION: SOUTH POLE			LAUNCH DATE: 23 FEB 89 316 Z					ECC SONDE: 4A4395				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	18.0	27197.	54.2	3.011	135.8	.2366	-42.6			726.5	8.0	263.
106	17.4	27426.	52.6	3.023	132.0	.2380	-43.2			731.8	10.6	296.
107	16.8	27662.	51.4	3.060	128.8	.2395	-42.9			740.1	5.8	288.
108	16.0	27991.	49.8	3.113	124.9	.2414	-42.7			751.0	6.2	196.
109	15.5	28206.	48.3	3.116	120.6	.2426	-41.8			761.0	6.0	150.
110	14.7	28565.	46.1	3.136	115.0	.2446	-41.8			772.6	12.0	247.
111	14.0	28896.	44.5	3.179	110.9	.2464	-41.5			784.4	16.6	260.
112	13.5	29143.	42.4	3.141	105.7	.2476	-41.8			791.6	16.6	260.

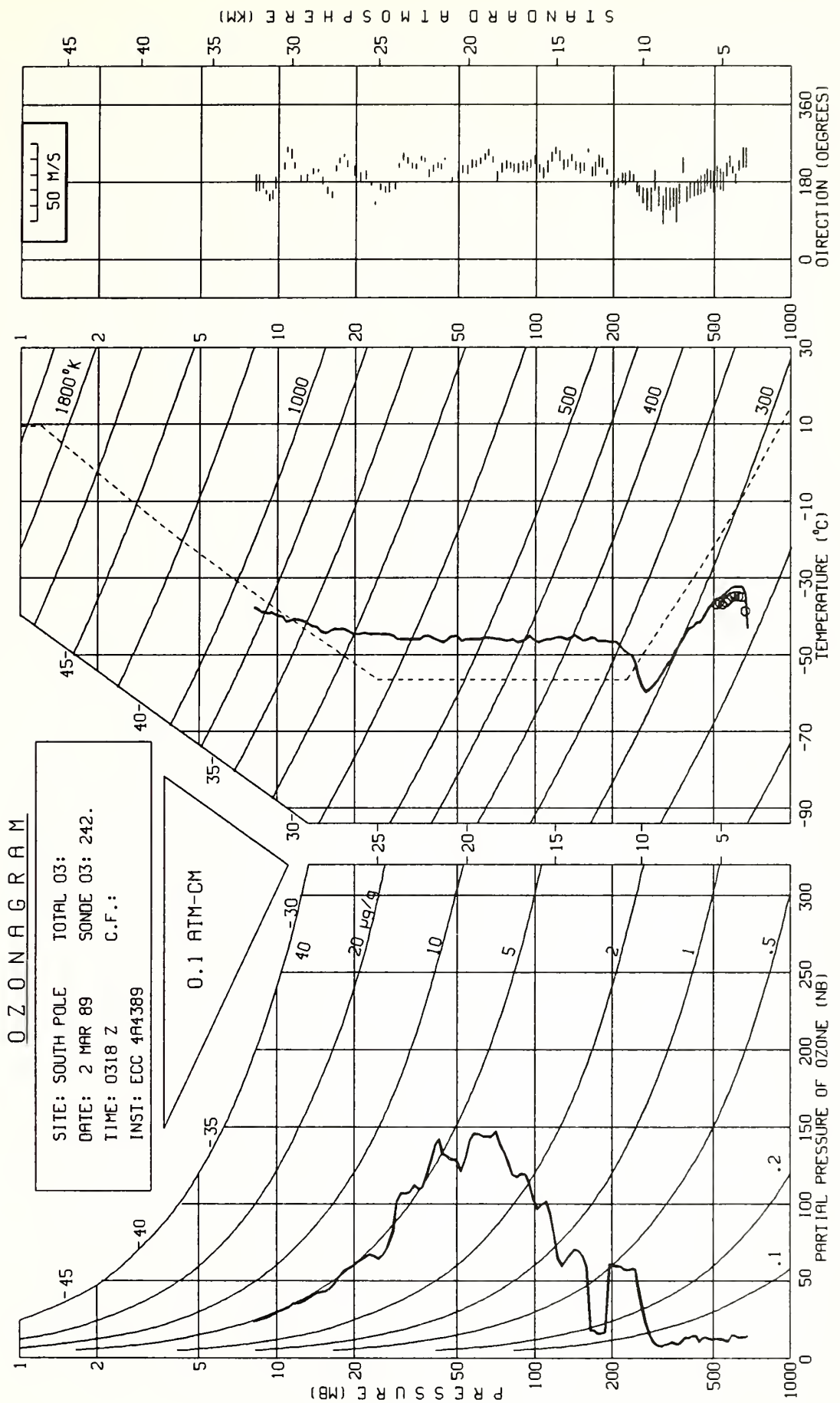
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
10.4	24.2	68.7	130.8	142.6	71.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110123028903	99				ECC TOTAL O3 FROM SONDE DATA 281
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110223028903	681	12-41		500	12-36159 9 300 26-58213 8 200 63-47172 10
1110323028903	150	78-45112	13	100130-44178	5 70148-45180 3 50157-44187 5
1110423028903	30110	-43197	420.0	59-43212	10 665 12-30259 8 650 11-30259 8
1110523028903	582	10-31195	7	421 12-45174	7 385 27-48170 13 372 13-49193 8
1110623028903	320	8-56111	11	310 10-58136	11 279 62-54195 12 251 67-49222 25
1110723028903	220	58-46156	12	179 78-46 92	2 173 50-45 49 3 131 87-45132 4
1110823028903	63142	-44187	4	60151-44187	5 54148-44191 4 33129-43189 6
1110923028903	25.1	75-44197	913.5	42-42260	17



STATION: SOUTH POLE LAUNCH DATE: 2 MAR 89 318 Z ECC SONDE: 4A4389
 SURFACE CONDITIONS: PRESSURE 680.6 MB, TEMPERATURE -43.4 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.3 ORD; HUM 33.0 % AT 77.8 ORD; TBOX 26.0 C AT 72.1 ORD;
 O3 ORD ZERO 31.0, BKGND 31.9, CAL 66.5; O3 BKGND 0.133 MICROAMP; FLOW RATE 26.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 242.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	680.6	2835.	14.5	.021	36.4	.0000	-43.4			256.5		
1	665.0	2994.	13.5	.020	32.6	.0003	-34.1	-38.9	63.0	268.6	12.8	236.
2	645.0	3209.	13.6	.021	32.6	.0006	-32.5	-35.2	78.2	272.7	12.8	236.
3	625.0	3431.	13.6	.022	32.7	.0009	-32.5	-35.0	80.3	275.2	6.3	218.
4	605.0	3660.	14.7	.024	35.2	.0013	-32.5	-35.0	80.3	277.8	6.6	187.
5	589.0	3849.	14.7	.025	35.3	.0016	-32.7	-35.1	80.2	279.7	5.5	209.
6	572.0	4055.	10.9	.019	26.2	.0019	-33.5	-35.9	79.8	281.2	7.3	228.
7	558.0	4229.	11.4	.020	27.5	.0021	-34.3	-36.6	80.4	282.2	8.8	208.
8	542.0	4432.	12.4	.023	30.0	.0024	-34.8	-37.2	79.8	283.9	12.0	181.
9	527.0	4628.	12.4	.024	30.1	.0026	-35.5	-36.6	91.4	285.4	13.8	186.
10	511.0	4842.	12.5	.024	30.4	.0029	-35.7	-37.1	89.3	287.6	14.3	193.
11	497.0	5035.	12.1	.024	29.5	.0032	-36.9			288.5	13.9	180.
12	481.0	5261.	12.6	.026	30.8	.0035	-37.9			290.0	12.5	186.
13	468.0	5449.	13.5	.029	33.4	.0038	-39.2			290.6	11.8	190.
14	456.0	5627.	13.1	.029	32.4	.0041	-40.6			291.1	11.7	177.
15	442.0	5838.	10.7	.024	26.7	.0044	-41.8			292.1	12.3	173.
16	430.0	6025.	14.5	.034	36.2	.0046	-41.8			294.4	10.7	168.
17	417.0	6232.	14.5	.035	36.3	.0050	-42.8			295.8	9.3	163.
18	403.0	6463.	13.1	.033	33.0	.0053	-43.4			297.9	9.5	159.
19	389.0	6700.	13.2	.034	33.5	.0057	-44.9			298.9	9.9	151.
20	377.0	6909.	10.4	.028	26.5	.0060	-46.2			299.9	9.6	218.
21	365.0	7123.	9.0	.025	23.0	.0063	-47.9			300.4	12.8	152.
22	355.0	7306.	9.5	.027	24.5	.0065	-49.1			301.2	22.0	126.
23	345.0	7492.	10.5	.030	27.2	.0067	-51.1			301.0	12.2	143.
24	335.0	7683.	9.1	.027	23.7	.0069	-52.3			301.9	14.2	140.
25	324.0	7898.	8.6	.027	22.7	.0071	-53.7			302.8	14.5	141.
26	314.0	8099.	7.7	.025	20.5	.0073	-55.3			303.3	18.3	114.
27	303.0	8326.	8.2	.027	21.9	.0076	-56.8			304.3	12.7	146.
28	292.0	8559.	10.6	.036	28.6	.0078	-58.2			305.6	13.5	184.
29	282.0	8778.	15.8	.056	42.7	.0081	-59.0			307.4	15.3	138.
30	272.0	9004.	23.7	.087	64.0	.0086	-59.9			309.3	14.1	139.
31	263.0	9215.	34.8	.132	93.6	.0093	-58.3			314.6	10.2	148.
32	253.0	9461.	48.5	.192	128.6	.0105	-55.3			322.6	7.3	160.
33	248.0	9589.	57.5	.232	150.5	.0113	-52.6			328.5	5.9	166.
34	240.0	9802.	57.9	.241	150.3	.0128	-50.6			334.6	4.8	188.
35	232.0	10023.	57.1	.246	147.6	.0143	-49.9			339.0	6.5	194.
36	223.0	10282.	57.7	.259	148.7	.0161	-49.1			344.0	7.8	186.
37	217.0	10462.	59.4	.274	152.5	.0173	-48.4			347.8	7.0	189.
38	208.0	10741.	59.6	.287	152.2	.0193	-46.9			354.3	6.6	177.
39	201.0	10968.	60.1	.299	153.2	.0209	-46.8			358.0	5.8	169.
40	195.5	11152.	60.7	.310	154.8	.0222	-46.9			360.7	3.6	175.
41	188.2	11405.	16.9	.090	43.2	.0236	-46.6			365.1	3.3	203.
42	181.1	11660.	16.1	.089	40.9	.0242	-46.6			369.1	6.0	224.
43	175.4	11872.	16.1	.092	40.9	.0246	-46.6			372.5	7.7	229.
44	170.0	12080.	17.9	.105	45.4	.0250	-45.9			377.0	9.3	210.
45	164.5	12299.	17.9	.109	45.4	.0254	-45.8			380.8	5.6	204.
46	159.0	12525.	59.3	.373	151.0	.0262	-46.2			383.8	2.1	253.
47	153.5	12759.	66.2	.431	168.5	.0278	-46.5			387.2	5.1	215.
48	148.0	13002.	69.7	.471	176.9	.0297	-45.8			392.5	6.9	212.
49	142.4	13259.	70.5	.495	178.5	.0318	-45.1			398.1	5.5	217.

STATION: SOUTH POLE				LAUNCH DATE: 2 MAR 89 318 Z				ECC SONDE: 4A4389				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	137.2	13507.	67.0	.488	170.1	.0339	-45.8			401.1	4.8	237.
51	132.6	13734.	63.7	.480	162.0	.0356	-46.2			404.3	4.9	223.
52	128.0	13969.	60.0	.469	152.5	.0374	-45.8			409.1	6.9	220.
53	123.2	14223.	64.7	.525	164.1	.0392	-45.6			413.9	6.9	241.
54	118.8	14466.	80.3	.676	204.0	.0411	-45.9			417.7	4.8	253.
55	114.8	14693.	93.7	.816	238.4	.0434	-46.2			421.3	6.2	238.
56	110.8	14929.	101.6	.917	258.4	.0460	-46.2			425.5	7.7	216.
57	106.6	15186.	99.9	.937	254.5	.0491	-46.5			429.7	6.9	201.
58	102.5	15446.	96.7	.943	246.7	.0522	-46.9			433.7	5.0	211.
59	98.5	15710.	103.9	1.055	264.4	.0552	-46.3			439.8	5.1	232.
60	95.2	15937.	112.6	1.183	285.1	.0580	-45.2			446.4	5.5	222.
61	92.0	16165.	119.1	1.295	303.0	.0611	-46.2			448.8	5.4	215.
62	88.5	16423.	119.5	1.350	304.6	.0647	-46.6			452.9	5.8	218.
63	85.2	16675.	117.6	1.380	300.2	.0682	-46.9			457.3	6.1	212.
64	82.1	16920.	118.8	1.447	302.2	.0717	-46.2			463.6	4.9	212.
65	79.3	17151.	126.1	1.590	321.3	.0750	-46.5			467.6	4.1	219.
66	76.5	17390.	132.9	1.737	338.6	.0785	-46.5			472.4	5.3	220.
67	73.7	17637.	138.5	1.879	352.3	.0824	-46.2			478.1	5.9	213.
68	71.0	17886.	146.9	2.069	373.4	.0865	-46.1			483.5	5.6	194.
69	68.0	18173.	143.6	2.112	364.9	.0915	-45.9			489.9	3.5	232.
70	65.5	18422.	143.7	2.194	364.8	.0956	-45.8			495.4	4.1	249.
71	63.2	18660.	143.7	2.274	365.2	.0996	-45.9			500.2	4.1	239.
72	60.9	18907.	145.4	2.388	370.0	.1038	-46.2			504.9	3.9	228.
73	58.4	19185.	145.5	2.491	370.1	.1086	-46.2			511.0	4.4	222.
74	56.3	19429.	141.7	2.517	360.4	.1127	-46.2			516.4	5.2	222.
75	54.1	19694.	129.5	2.394	329.3	.1170	-46.2			522.3	5.9	209.
76	51.8	19982.	121.4	2.344	309.4	.1214	-46.6			527.8	4.9	209.
77	49.8	20244.	128.3	2.576	325.2	.1252	-45.3			536.8	4.5	196.
78	47.2	20602.	129.1	2.735	327.4	.1306	-45.5			544.7	2.9	186.
79	45.8	20803.	130.9	2.858	332.9	.1336	-46.2			547.7	.0	6.
80	44.1	21054.	132.6	3.007	338.5	.1375	-46.9			551.9	1.1	234.
81	42.8	21252.	141.8	3.313	361.4	.1407	-46.6			557.4	3.3	216.
82	41.4	21473.	138.4	3.343	352.1	.1443	-46.2			563.8	3.8	219.
83	40.0	21702.	129.9	3.248	329.8	.1480	-45.8			570.4	3.9	212.
84	38.5	21957.	119.7	3.109	303.1	.1518	-45.2			578.1	4.0	199.
85	37.0	22222.	111.1	3.003	281.8	.1555	-45.5			584.0	2.4	231.
86	35.8	22441.	109.4	3.056	278.3	.1583	-46.2			587.7	2.8	235.
87	34.3	22726.	112.1	3.268	285.1	.1621	-46.2			594.9	3.5	216.
88	33.0	22983.	107.6	3.261	273.6	.1654	-46.2			601.5	3.3	218.
89	31.7	23250.	106.8	3.369	271.6	.1688	-46.2			608.4	3.8	230.
90	30.5	23506.	107.0	3.508	272.1	.1720	-46.2			615.2	4.4	239.
91	29.3	23773.	101.3	3.457	257.5	.1753	-46.1			622.7	2.6	218.
92	28.4	23981.	82.1	2.891	208.0	.1777	-45.3			630.2	4.0	170.
93	27.0	24319.	71.6	2.652	181.0	.1808	-44.8			641.0	5.6	166.
94	26.0	24571.	67.0	2.577	169.4	.1829	-44.8			647.9	4.1	163.
95	24.9	24861.	64.5	2.590	163.2	.1852	-44.8			656.0	3.8	168.
96	23.7	25191.	66.4	2.802	167.9	.1877	-44.8			665.3	2.1	130.
97	22.9	25421.	67.2	2.934	169.8	.1895	-44.8			671.9	2.0	175.
98	21.8	25750.	64.9	2.977	163.8	.1921	-44.5			682.2	5.9	197.
99	20.7	26097.	62.8	3.034	158.8	.1947	-44.8			691.6	5.8	192.
100	19.7	26428.	59.9	3.041	151.5	.1971	-44.8			701.4	5.9	206.
101	18.5	26849.	57.2	3.092	144.0	.2001	-43.8			717.2	4.2	222.
102	17.9	27071.	55.1	3.078	138.4	.2015	-43.4			725.3	1.7	242.
103	17.2	27339.	51.7	3.006	130.1	.2032	-43.6			732.7	3.5	230.
104	16.7	27538.	48.0	2.874	120.5	.2044	-43.4			739.8	3.6	212.

STATION: SOUTH POLE			LAUNCH DATE: 2 MAR 89			318 Z	ECC SONDE: 4A4389						
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
105	16.1	27784.	45.1	2.801	113.7	.2057	-43.9			745.8	3.8	150.	
106	15.5	28038.	43.5	2.806	109.9	.2070	-44.5			752.1	5.1	161.	
107	14.8	28348.	42.7	2.885	107.6	.2086	-44.2			763.0	4.7	183.	
108	14.2	28626.	41.9	2.951	105.1	.2100	-42.9			776.3	1.6	206.	
109	13.6	28918.	39.8	2.926	99.8	.2114	-42.7			786.9	3.4	205.	
110	12.9	29275.	37.4	2.899	93.2	.2130	-41.7			802.3	5.0	189.	
111	12.2	29654.	35.7	2.926	88.9	.2146	-41.1			817.1	3.4	189.	
112	11.5	30056.	35.4	3.078	88.0	.2163	-40.9			832.0	4.0	218.	
113	11.2	30235.	33.2	2.964	82.8	.2170	-41.3			836.8	5.4	245.	
114	10.8	30482.	32.0	2.963	79.7	.2179	-41.6			844.6	2.7	256.	
115	10.5	30674.	31.1	2.962	77.2	.2186	-40.3			855.9	4.4	217.	
116	10.0	31007.	29.8	2.980	73.7	.2198	-40.0			869.0	8.9	203.	
117	9.7	31215.	28.5	2.938	70.5	.2205	-39.6			878.1	7.6	178.	
118	9.4	31401.	27.3	2.892	67.3	.2211	-39.2			886.5	5.9	150.	
119	9.2	31585.	26.4	2.873	65.2	.2217	-39.5			892.3	4.2	144.	
120	8.9	31789.	25.6	2.870	63.1	.2223	-39.2			900.9	2.6	156.	
121	8.7	31984.	25.2	2.907	62.0	.2229	-39.1			908.8	4.5	173.	
122	8.4	32201.	24.3	2.893	59.8	.2235	-38.4			919.7	10.3	178.	
123	8.2	32409.	23.9	2.933	58.7	.2240	-37.9			929.8	10.3	178.	

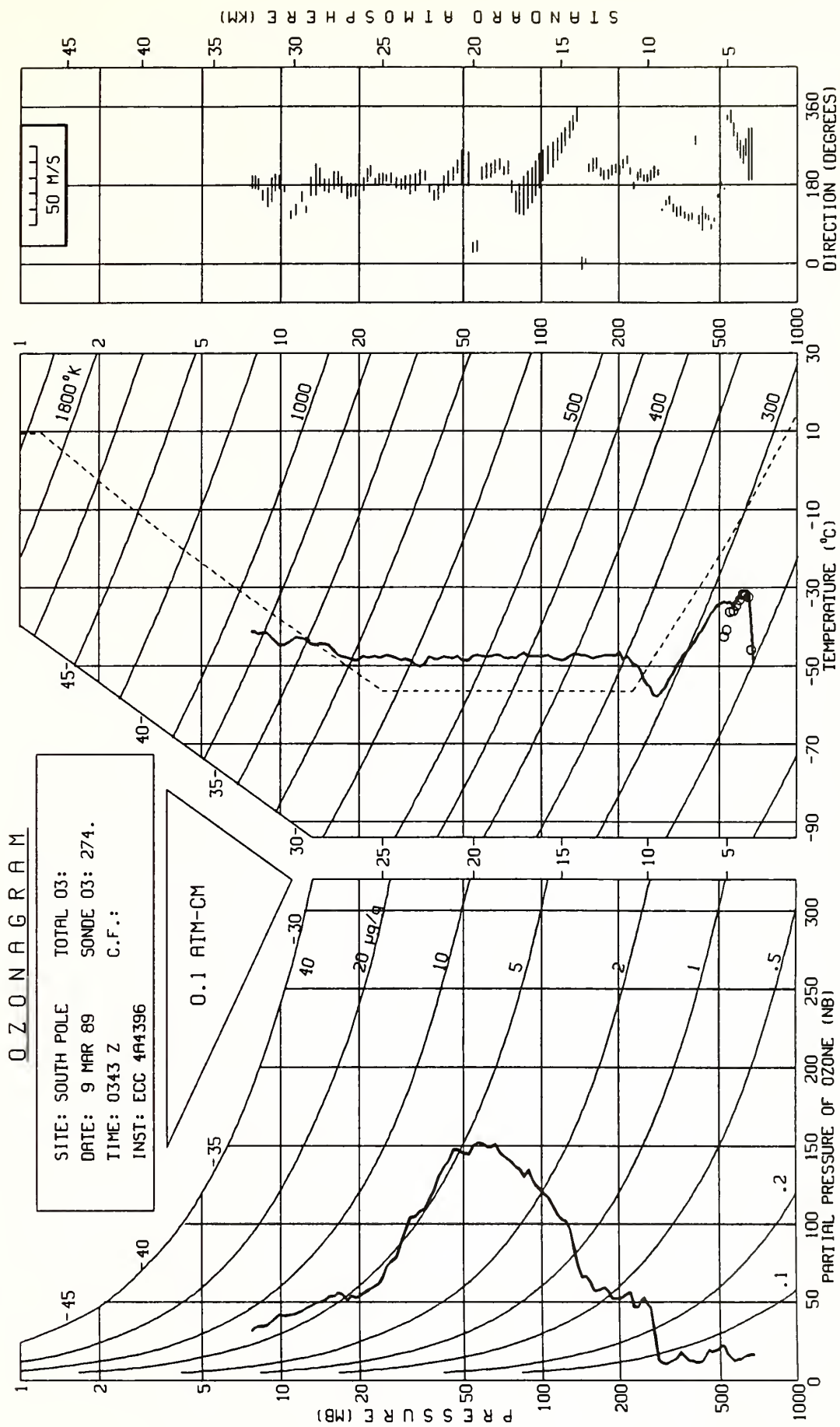
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
12.9	14.3	50.3	114.1	126.3	67.1	34.4	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110102038903			99		ECC TOTAL O3 FROM SONDE DATA 242
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110202038903	681	15-43		500	12-37183 14 300 9-57156 13 200 60-47170 5
1110302038903	150	68-46213	6	100101-47224	5 70146-46206 5 50128-45197 5
1110402038903	30105-46230		420.0	61-45202	610.0 30-40203 9 665 14-34236 13
1110502038903	645	14-33236	13	403 13-43159	10 272 24-60139 14 248 58-53166 6
1110602038903	240	58-51188	5	196 61-47175	4 188 17-47203 3 165 18-46204 6
1110702038903	159	59-46253	2	128 60-46220	7 123 65-46241 7 111102-46216 8
1110802038903	92119-46215		5	82119-46212	5 58146-46222 4 52121-47209 5
1110902038903	44133-47234		1	43142-47216	3 37111-46231 229.3101-46218 3
1111002038903	28.4	82-45170		426.0 67-45163	4 8.2 24-38178 10



STATION: SOUTH POLE LAUNCH DATE: 9 MAR 89 343 Z ECC SONDE: 4A4396
 SURFACE CONDITIONS: PRESSURE 680.3 MB, TEMPERATURE -49.5 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.2 ORD; HUM 33.0 % AT 77.0 ORD; TBOX 25.0 C AT 71.9 ORD;
 O3 ORD ZERO 32.4, BKGND 32.7, CAL 67.9; O3 BKGND 0.045 MICROAMP; FLOW RATE 26.1 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 274.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	680.3	2835.	16.2	.024	41.7	.0000	-49.5			249.6		
1	665.0	2988.	16.7	.025	41.0	.0003	-38.6	-46.1	45.7	263.5	33.3	250.
2	649.0	3157.	16.2	.025	38.8	.0006	-31.7	-32.6	93.1	273.2	33.3	250.
3	632.0	3345.	15.8	.025	37.6	.0009	-31.0	-31.9	93.4	276.1	11.5	266.
4	617.0	3516.	14.9	.024	35.4	.0012	-31.0	-31.9	93.4	278.0	11.6	250.
5	600.0	3714.	13.4	.022	32.0	.0015	-32.2	-33.4	91.0	278.8	11.4	262.
6	584.0	3904.	13.6	.023	32.7	.0018	-33.7	-34.7	92.2	279.3	11.3	279.
7	568.0	4098.	12.6	.022	30.6	.0021	-35.0	-36.1	91.5	279.9	9.3	307.
8	550.0	4323.	14.5	.026	34.9	.0025	-33.7	-36.4	77.4	284.1	8.0	337.
9	535.0	4517.	16.8	.031	40.7	.0028	-34.1	-41.0	50.4	285.9	2.8	335.
10	521.0	4703.	21.9	.042	52.8	.0031	-33.7	-42.7	40.3	288.5	.9	172.
11	507.0	4894.	22.2	.044	53.7	.0036	-34.2			290.1	1.8	183.
12	492.0	5104.	19.9	.040	48.3	.0041	-34.7			292.0	2.0	154.
13	477.0	5320.	18.9	.040	46.0	.0046	-35.9			293.1	2.0	100.
14	463.0	5526.	18.4	.040	45.0	.0050	-37.0			294.3	2.8	85.
15	452.0	5692.	19.4	.043	47.6	.0054	-38.2			294.8	3.3	105.
16	440.0	5877.	16.2	.037	40.1	.0058	-39.6			295.3	3.7	109.
17	428.0	6065.	12.5	.029	31.2	.0061	-41.1			295.8	15.5	103.
18	415.0	6274.	11.6	.028	29.0	.0064	-42.2			297.0	5.7	101.
19	402.0	6489.	11.6	.029	29.2	.0067	-43.9			297.5	5.7	283.
20	390.0	6692.	12.5	.032	31.5	.0070	-45.0			298.6	4.5	108.
21	378.0	6900.	12.5	.033	31.8	.0073	-46.3			299.6	4.4	106.
22	364.0	7150.	15.2	.042	38.9	.0077	-47.3			301.4	4.5	111.
23	352.0	7371.	17.9	.051	46.2	.0081	-48.9			302.2	6.2	120.
24	340.0	7598.	14.3	.042	37.1	.0086	-50.4			303.1	6.1	118.
25	329.0	7812.	12.9	.039	33.7	.0089	-52.3			303.4	5.2	128.
26	318.0	8031.	12.0	.038	31.5	.0092	-53.7			304.4	5.1	145.
27	308.0	8236.	10.6	.034	28.1	.0095	-55.6			304.5	3.3	139.
28	297.0	8467.	11.1	.037	29.5	.0098	-56.8			306.1	1.6	123.
29	287.0	8683.	12.8	.045	34.5	.0102	-58.0			307.4	4.0	209.
30	277.0	8907.	30.5	.110	81.6	.0106	-57.7			311.0	7.2	211.
31	268.0	9117.	46.3	.173	122.9	.0115	-55.5			317.1	6.6	202.
32	260.0	9310.	48.5	.187	128.5	.0126	-55.0			320.6	4.9	195.
33	252.0	9510.	52.6	.209	138.2	.0138	-53.5			325.6	4.4	197.
34	245.0	9693.	50.9	.208	132.5	.0150	-51.2			331.7	5.6	208.
35	238.0	9881.	46.9	.197	121.4	.0161	-50.1			336.1	5.5	200.
36	230.0	10105.	47.3	.206	122.2	.0174	-49.7			340.1	4.5	179.
37	223.0	10308.	56.1	.252	144.4	.0185	-48.6			344.7	4.5	212.
38	217.0	10488.	55.7	.257	142.7	.0198	-47.8			348.8	5.4	238.
39	209.0	10735.	53.8	.257	138.4	.0214	-48.6			351.2	5.6	229.
40	202.0	10960.	52.3	.259	133.3	.0228	-46.7			357.6	5.8	215.
41	195.5	11177.	52.4	.268	134.0	.0242	-47.5			359.8	6.1	218.
42	188.5	11418.	52.4	.278	133.9	.0257	-47.5			363.6	6.8	214.
43	181.8	11657.	56.6	.311	144.9	.0272	-47.5			367.3	6.0	205.
44	175.1	11905.	59.4	.339	151.9	.0288	-47.5			371.3	6.1	203.
45	169.9	12104.	58.5	.344	149.8	.0302	-47.8			374.0	5.8	210.
46	164.3	12325.	57.6	.351	147.7	.0317	-47.9			377.4	7.3	230.
47	159.0	12542.	57.4	.361	147.4	.0332	-48.3			380.2	8.8	227.
48	153.8	12761.	63.3	.412	162.2	.0347	-47.9			384.6	5.1	219.
49	148.4	12997.	66.8	.450	170.9	.0365	-47.5			389.3	3.2	5.

STATION: SOUTH POLE			LAUNCH DATE: 9 MAR 89 343 Z				ECC SONDE: 4A4396					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	143.0	13242.	66.0	.462	168.9	.0385	-47.5			393.4	7.8	0.
51	137.7	13492.	73.7	.535	188.2	.0405	-47.2			398.2	8.5	341.
52	133.2	13712.	84.8	.637	216.6	.0425	-47.2			402.0	9.3	323.
53	128.8	13934.	96.7	.751	247.7	.0448	-47.8			404.8	10.4	307.
54	124.3	14168.	101.9	.820	262.1	.0475	-48.6			407.4	11.6	291.
55	119.9	14405.	103.0	.859	265.0	.0504	-48.8			411.3	13.0	277.
56	115.5	14651.	105.8	.916	272.1	.0534	-48.6			416.0	14.5	263.
57	111.0	14912.	111.3	1.003	285.8	.0568	-48.3			421.3	16.3	250.
58	106.3	15198.	116.8	1.099	298.8	.0606	-47.5			428.2	18.1	238.
59	102.0	15470.	119.4	1.171	305.7	.0644	-47.8			432.7	20.0	225.
60	98.3	15714.	122.4	1.245	313.6	.0679	-47.8			437.3	21.9	213.
61	95.4	15912.	124.5	1.305	318.8	.0707	-47.8			441.1	22.2	195.
62	92.5	16116.	127.4	1.377	326.3	.0737	-47.8			445.0	23.0	179.
63	89.0	16370.	134.3	1.509	344.0	.0776	-47.8			449.9	24.3	169.
64	85.8	16613.	130.4	1.520	333.0	.0814	-47.0			456.1	25.1	155.
65	82.4	16880.	134.9	1.637	345.4	.0856	-47.6			460.2	19.7	148.
66	79.8	17092.	136.1	1.706	349.5	.0889	-48.3			463.0	13.2	142.
67	77.1	17318.	139.0	1.803	356.6	.0926	-48.0			468.1	7.9	177.
68	74.4	17553.	141.0	1.895	362.0	.0966	-48.3			472.3	8.6	221.
69	71.8	17788.	142.9	1.990	366.8	.1005	-48.2			477.5	5.7	213.
70	69.2	18031.	145.2	2.098	371.4	.1047	-47.5			484.1	7.2	228.
71	66.2	18324.	150.9	2.279	386.0	.1097	-47.5			490.3	8.5	222.
72	64.0	18547.	149.4	2.334	382.6	.1137	-47.8			494.4	8.9	214.
73	61.5	18810.	149.4	2.429	383.0	.1183	-47.9			499.7	9.8	213.
74	59.0	19084.	151.5	2.568	387.9	.1232	-47.8			506.0	7.9	207.
75	56.5	19370.	151.7	2.685	388.1	.1283	-47.5			513.0	7.1	40.
76	54.5	19608.	149.9	2.750	383.9	.1326	-47.8			517.6	6.2	36.
77	52.4	19867.	144.5	2.758	372.1	.1371	-48.9			520.7	21.8	217.
78	49.5	20241.	145.2	2.933	373.6	.1435	-48.8			529.6	22.1	220.
79	47.5	20513.	147.5	3.105	377.8	.1483	-47.8			538.3	9.2	223.
80	45.8	20753.	147.4	3.218	378.5	.1525	-48.3			542.5	8.4	206.
81	43.9	21032.	140.2	3.194	359.9	.1573	-48.2			549.5	9.9	195.
82	42.0	21324.	136.2	3.243	349.0	.1621	-47.9			557.2	10.7	182.
83	40.1	21629.	129.7	3.234	333.6	.1670	-48.6			562.8	9.6	164.
84	38.7	21862.	122.2	3.158	314.1	.1706	-48.5			568.9	7.3	157.
85	37.1	22141.	116.3	3.135	298.2	.1746	-47.9			577.3	4.5	170.
86	35.7	22393.	109.9	3.078	283.9	.1780	-49.7			579.1	6.3	201.
87	34.2	22674.	108.2	3.164	280.6	.1817	-50.4			584.3	8.8	198.
88	32.8	22947.	104.8	3.195	270.9	.1852	-49.8			592.9	11.1	186.
89	31.2	23275.	104.0	3.333	267.8	.1893	-48.9			603.8	12.3	181.
90	30.0	23533.	95.7	3.190	245.8	.1924	-48.5			611.9	8.9	185.
91	28.9	23778.	87.6	3.031	225.3	.1952	-48.8			617.6	6.8	182.
92	27.7	24057.	78.8	2.845	202.3	.1980	-48.3			626.4	7.0	185.
93	26.5	24349.	76.2	2.875	195.2	.2007	-47.8			636.0	6.1	196.
94	25.4	24629.	72.8	2.866	186.2	.2032	-47.5			644.6	4.3	196.
95	24.6	24841.	66.1	2.687	169.5	.2050	-47.9			649.3	6.5	196.
96	23.8	25059.	62.4	2.622	160.2	.2067	-48.2			654.6	7.4	192.
97	23.0	25284.	60.7	2.639	155.5	.2084	-47.8			662.3	4.5	187.
98	22.1	25547.	59.1	2.674	151.6	.2102	-48.0			669.0	7.5	212.
99	21.5	25729.	57.7	2.684	148.2	.2115	-48.2			673.8	8.8	202.
100	20.7	25979.	55.9	2.700	143.1	.2132	-47.8			682.5	8.5	182.
101	20.0	26206.	54.0	2.700	138.8	.2147	-48.6			686.6	8.1	175.
102	19.3	26440.	53.2	2.756	137.1	.2162	-48.9			692.7	8.4	169.
103	18.5	26718.	54.1	2.924	139.0	.2180	-48.5			702.5	9.2	168.
104	17.9	26935.	51.0	2.849	130.9	.2193	-48.2			710.1	9.7	166.

STATION: SOUTH POLE			LAUNCH DATE: 9 MAR 89 343 Z				ECC SONDE: 4A4396					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	17.1	27237.	55.3	3.234	141.9	.2212	-47.9			720.3	10.3	181.
106	16.5	27473.	56.0	3.394	143.4	.2228	-47.5			729.2	9.9	194.
107	16.0	27676.	54.1	3.381	137.9	.2241	-46.4			738.9	11.6	190.
108	15.3	27974.	53.8	3.516	136.2	.2260	-45.0			753.2	8.6	178.
109	14.7	28242.	51.4	3.497	129.9	.2276	-44.7			762.8	7.6	180.
110	14.1	28521.	50.3	3.567	127.0	.2293	-44.6			772.4	12.1	198.
111	13.6	28762.	49.6	3.647	125.6	.2307	-44.9			779.4	19.9	193.
112	13.0	29064.	47.7	3.669	120.4	.2325	-44.6			790.5	12.0	177.
113	12.5	29327.	46.5	3.720	117.1	.2339	-43.6			802.9	4.3	124.
114	12.0	29602.	44.6	3.717	112.0	.2354	-43.2			813.8	6.5	153.
115	11.4	29948.	42.7	3.746	107.1	.2372	-43.0			826.3	7.2	123.
116	10.9	30250.	41.9	3.844	105.6	.2387	-43.9			833.9	5.1	111.
117	10.3	30629.	41.4	4.019	104.8	.2405	-44.9			843.8	4.6	172.
118	9.8	30948.	41.9	4.267	106.0	.2421	-44.9			855.4	8.6	187.
119	9.5	31170.	39.8	4.189	100.2	.2431	-43.9			867.3	10.8	186.
120	9.2	31386.	37.7	4.098	94.5	.2441	-42.9			879.1	15.5	169.
121	8.9	31625.	35.3	3.975	88.2	.2451	-41.8			892.3	12.3	152.
122	8.5	31938.	34.6	4.080	86.3	.2464	-41.8			904.1	6.7	157.
123	8.2	32207.	34.8	4.270	87.0	.2475	-42.1			913.3	7.2	182.
124	8.0	32375.	33.9	4.264	84.4	.2481	-41.5			922.0	8.6	187.
125	7.7	32565.	31.7	4.101	78.9	.2489	-41.5			929.5	8.6	187.

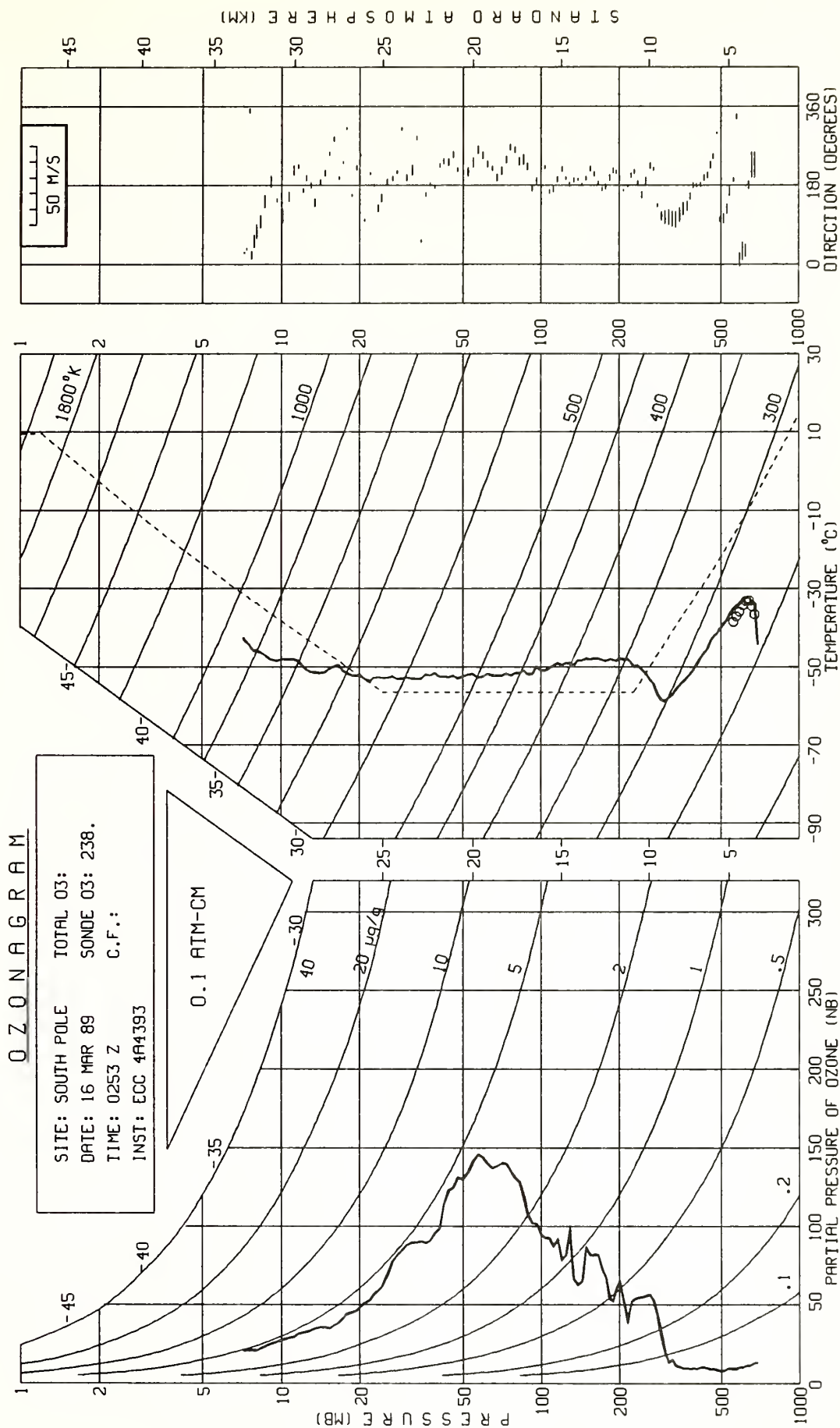
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
15.9	18.9	60.2	126.8	132.9	65.6	42.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110109038904	99				ECC TOTAL O3 FROM SONDE DATA 274
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110209038904	680	16-50		500	21-34170 2 300 11-56127 2 200 52-47216 6
1110309038904	150	66-48 69	4	100121-48219	21 70144-48223 7 50145-49219 22
1110409038904	30	96-49185	920.0	54-49175	810.0 42-45181 7 665 17-39250 33
1110509038904	649	16-32250	33	617 15-31250	12 568 13-35307 9 287 13-58209 4
1110609038904	277	31-58211	7	268 46-56202	7 238 47-50200 6 223 56-49212 5
1110709038904	143	66-48 0	8	124102-49291	12 57152-48 40 7 46147-48206 8
1110809038904		37116-48170	5	34108-50198	923.8 62-48192 712.0 45-43153 7
1110909038904	8.9	35-42152	12	7.7 32-42187	9



STATION: SOUTH POLE LAUNCH DATE: 16 MAR 89 253 Z ECC SONDE: 4A4393
 SURFACE CONDITIONS: PRESSURE 691.3 MB, TEMPERATURE -44.4 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 25.5 C AT 70.0 ORD;
 O3 ORD ZERO 29.3, BKGND 29.7, CAL 64.0; O3 BKGND 0.061 MICROAMP; FLOW RATE 24.4 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 238.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	691.3	2835.	13.0	.019	32.8	.0000	-44.4			254.3		
1	673.0	3019.	13.0	.019	31.5	.0003	-34.5	-36.8	81.2	267.3	16.8	227.
2	657.0	3187.	12.1	.018	29.2	.0005	-33.7	-34.7	92.3	270.0	16.8	227.
3	640.0	3372.	11.2	.018	26.8	.0008	-32.4	-33.3	92.9	273.5	5.3	181.
4	622.0	3573.	11.2	.018	26.9	.0010	-32.5	-33.4	92.8	275.6	8.3	31.
5	606.0	3756.	10.3	.017	24.8	.0012	-33.4	-34.4	92.4	276.6	11.6	29.
6	588.0	3968.	10.3	.018	24.8	.0015	-34.1	-36.1	83.1	278.2	8.9	10.
7	572.0	4161.	9.5	.017	22.9	.0017	-34.4	-37.3	76.2	280.1	3.8	338.
8	557.0	4346.	9.4	.017	22.9	.0019	-35.4	-38.7	73.5	281.0	2.7	193.
9	540.0	4561.	9.4	.017	23.0	.0021	-36.8			281.9	5.5	166.
10	527.0	4730.	9.3	.018	22.9	.0023	-38.1			282.2	6.0	126.
11	512.0	4928.	8.0	.016	19.7	.0025	-39.2			283.3	6.4	105.
12	497.0	5131.	8.0	.016	19.9	.0027	-40.4			284.2	2.9	101.
13	482.0	5340.	8.5	.018	21.1	.0029	-41.7			285.1	1.1	300.
14	466.0	5568.	9.3	.020	23.3	.0031	-42.5			286.9	3.6	247.
15	455.0	5729.	8.9	.020	22.3	.0033	-43.6			287.4	4.4	227.
16	443.0	5908.	9.7	.022	24.6	.0035	-45.5			287.3	3.9	203.
17	430.0	6106.	10.1	.023	25.7	.0037	-46.7			288.3	3.9	197.
18	417.0	6309.	10.1	.024	25.9	.0039	-47.8			289.3	2.8	182.
19	403.0	6534.	9.2	.023	23.8	.0042	-49.5			290.0	2.8	180.
20	390.0	6748.	9.6	.025	25.1	.0044	-51.1			290.5	3.5	180.
21	380.0	6916.	9.2	.024	24.1	.0046	-51.9			291.7	4.1	155.
22	369.0	7106.	9.6	.026	25.1	.0048	-53.0			292.7	6.2	133.
23	357.0	7319.	9.6	.027	25.2	.0051	-54.0			294.2	8.1	126.
24	346.0	7519.	10.4	.030	27.6	.0053	-54.9			295.5	8.9	113.
25	334.0	7744.	11.3	.034	30.0	.0056	-56.1			296.9	10.0	102.
26	323.0	7957.	15.0	.046	40.1	.0059	-57.5			297.9	9.5	104.
27	313.0	8155.	13.2	.042	35.5	.0063	-58.1			299.6	9.2	107.
28	303.0	8359.	18.5	.061	49.8	.0067	-59.0			301.2	8.3	107.
29	293.0	8570.	30.9	.105	83.2	.0072	-58.7			304.6	5.6	109.
30	283.0	8789.	42.6	.151	113.8	.0081	-57.1			309.9	2.1	134.
31	273.0	9018.	52.6	.193	138.8	.0094	-54.5			316.9	2.1	217.
32	264.0	9233.	56.5	.214	148.4	.0108	-53.3			321.6	4.0	225.
33	255.0	9457.	55.8	.219	145.4	.0123	-51.8			327.1	4.0	191.
34	246.0	9691.	55.1	.224	143.2	.0139	-51.0			331.7	4.2	158.
35	237.0	9934.	54.7	.231	141.4	.0155	-49.8			337.1	3.0	185.
36	230.0	10130.	53.6	.233	138.9	.0168	-50.2			339.3	2.8	211.
37	223.0	10332.	51.9	.233	133.7	.0180	-49.2			343.9	2.7	203.
38	216.0	10542.	39.6	.183	101.7	.0193	-48.3			348.4	1.6	178.
39	209.0	10759.	51.0	.244	131.0	.0204	-48.3			351.7	1.4	168.
40	201.0	11016.	64.9	.323	166.6	.0220	-48.1			355.9	2.2	196.
41	195.2	11209.	60.8	.311	156.3	.0235	-48.7			357.9	2.5	211.
42	189.5	11404.	52.3	.276	134.3	.0249	-48.4			361.5	3.1	214.
43	183.7	11608.	54.0	.294	138.7	.0261	-48.3			364.9	3.6	197.
44	177.8	11823.	67.4	.379	173.4	.0276	-48.7			367.6	3.2	177.
45	172.0	12041.	72.6	.422	186.6	.0294	-48.4			371.6	2.2	171.
46	166.0	12275.	82.0	.494	210.4	.0314	-48.1			375.9	2.1	185.
47	160.2	12510.	81.8	.511	209.8	.0337	-48.1			379.7	2.6	206.
48	154.5	12748.	81.7	.529	209.9	.0360	-48.3			383.4	3.0	218.
49	149.1	12983.	86.5	.580	221.9	.0384	-48.1			387.6	2.6	196.

STATION: SOUTH POLE			LAUNCH DATE: 16 MAR 89				253 Z	ECC	SONDE: 4A4393			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	144.0	13212.	65.1	.452	167.3	.0406	-48.6			390.7	1.7	182.
51	138.8	13454.	62.9	.453	161.7	.0424	-48.6			394.8	1.8	193.
52	133.8	13694.	66.7	.499	172.5	.0443	-49.9			396.6	3.0	192.
53	129.2	13923.	97.4	.754	251.3	.0463	-49.3			401.7	2.7	182.
54	124.9	14145.	81.9	.656	211.0	.0487	-49.2			405.8	1.8	196.
55	120.5	14380.	78.6	.652	203.2	.0510	-49.8			408.9	3.3	217.
56	116.1	14624.	91.6	.789	236.2	.0534	-49.3			414.1	3.8	193.
57	112.0	14859.	87.2	.779	225.4	.0560	-49.8			417.6	3.4	171.
58	107.8	15109.	92.5	.858	240.0	.0586	-50.5			420.7	2.5	166.
59	103.7	15362.	92.6	.893	240.8	.0614	-51.1			424.2	2.1	221.
60	100.0	15598.	95.2	.952	247.5	.0641	-51.1			428.6	3.6	226.
61	96.2	15850.	101.5	1.055	262.8	.0670	-50.2			435.2	4.3	189.
62	92.5	16105.	101.8	1.101	265.9	.0702	-52.1			436.5	4.2	174.
63	88.8	16370.	107.8	1.214	281.6	.0735	-52.1			441.6	4.6	223.
64	85.8	16593.	118.5	1.381	308.1	.0765	-51.1			447.8	6.6	239.
65	82.6	16840.	128.3	1.553	334.5	.0801	-51.8			451.4	4.9	235.
66	79.5	17088.	130.9	1.647	341.3	.0839	-51.8			456.4	3.6	262.
67	76.4	17345.	135.4	1.772	354.4	.0880	-52.5			460.0	4.0	267.
68	73.7	17578.	139.5	1.893	364.1	.0918	-51.9			466.1	4.4	239.
69	70.7	17847.	140.3	1.984	367.1	.0963	-52.5			470.3	4.8	213.
70	67.7	18126.	138.4	2.044	362.2	.1010	-52.5			476.1	4.3	198.
71	65.0	18395.	137.0	2.109	358.3	.1055	-52.4			482.2	3.2	218.
72	62.2	18672.	139.8	2.247	365.1	.1101	-52.1			488.8	4.0	228.
73	59.7	18936.	144.0	2.410	377.0	.1146	-52.7			493.1	4.3	249.
74	57.2	19218.	145.4	2.542	381.3	.1195	-53.0			498.6	5.5	262.
75	54.6	19520.	141.0	2.584	368.1	.1248	-52.1			507.5	6.1	232.
76	52.3	19793.	134.0	2.561	350.1	.1294	-52.2			513.3	5.2	211.
77	49.9	20101.	129.7	2.600	339.7	.1343	-52.7			519.2	3.2	189.
78	47.7	20389.	130.9	2.744	343.4	.1389	-53.2			524.7	2.2	216.
79	45.9	20646.	124.4	2.713	325.6	.1429	-52.5			532.2	4.4	250.
80	44.1	20899.	123.0	2.790	322.4	.1467	-52.9			537.5	4.8	233.
81	42.2	21186.	113.8	2.699	297.9	.1509	-52.7			544.7	3.5	235.
82	40.6	21435.	98.8	2.435	258.7	.1542	-52.7			550.8	2.3	226.
83	38.8	21717.	95.3	2.454	248.4	.1576	-51.8			560.1	1.8	177.
84	37.4	21962.	90.8	2.428	237.5	.1604	-52.5			564.1	2.2	182.
85	35.8	22240.	89.3	2.492	233.5	.1634	-52.2			571.9	2.5	159.
86	34.5	22480.	90.2	2.614	236.8	.1660	-53.2			575.6	1.5	53.
87	33.1	22753.	89.7	2.712	235.6	.1690	-53.3			582.2	2.3	288.
88	31.7	23024.	89.7	2.828	235.5	.1720	-53.2			589.6	6.3	214.
89	30.3	23328.	87.9	2.905	230.7	.1752	-53.0			598.0	4.0	197.
90	29.0	23596.	84.6	2.914	222.1	.1781	-53.2			604.8	1.3	309.
91	27.9	23863.	81.5	2.926	214.1	.1808	-53.3			611.5	1.8	210.
92	26.7	24130.	77.7	2.908	203.5	.1834	-52.7			620.6	3.4	195.
93	25.5	24429.	68.7	2.693	180.1	.1861	-53.0			628.0	4.3	186.
94	24.2	24761.	61.1	2.522	160.3	.1888	-53.0			637.3	5.0	150.
95	23.5	24960.	59.1	2.516	154.9	.1903	-52.9			643.4	4.2	127.
96	22.7	25192.	56.8	2.507	149.0	.1919	-53.0			649.6	1.6	179.
97	21.9	25424.	53.0	2.425	139.6	.1935	-53.8			653.9	1.2	207.
98	20.9	25721.	51.0	2.444	134.0	.1954	-53.3			664.0	1.3	100.
99	20.1	25953.	48.6	2.414	127.2	.1968	-52.5			673.3	1.6	249.
100	19.4	26187.	46.2	2.379	120.9	.1982	-52.5			680.3	2.7	220.
101	18.6	26454.	45.2	2.426	118.3	.1997	-52.5			688.4	1.5	157.
102	17.8	26756.	44.2	2.485	115.2	.2013	-51.8			700.1	.7	310.
103	17.2	26958.	41.6	2.413	108.3	.2024	-51.3			707.8	1.2	232.
104	16.6	27196.	38.7	2.329	100.0	.2035	-49.8			720.2	1.4	197.

STATION: SOUTH POLE LAUNCH DATE: 16 MAR 89 253 Z ECC SONDE: 4A4393

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	15.9	27471.	37.1	2.327	96.0	.2048	-50.1			727.9	3.3	286.
106	15.3	27746.	34.9	2.284	90.7	.2060	-50.8			734.2	2.1	252.
107	14.7	27987.	35.6	2.418	92.8	.2070	-51.5			740.0	3.8	208.
108	14.1	28264.	35.7	2.530	93.0	.2082	-51.8			748.0	3.0	187.
109	13.4	28577.	35.0	2.604	91.2	.2096	-51.6			758.9	5.0	140.
110	12.9	28824.	33.8	2.612	88.1	.2106	-51.5			767.7	3.6	180.
111	12.5	29072.	32.8	2.632	85.2	.2116	-51.0			777.8	3.2	197.
112	12.1	29251.	32.4	2.673	84.0	.2123	-50.1			787.1	2.5	168.
113	11.6	29541.	31.4	2.709	80.8	.2134	-48.7			802.0	2.9	223.
114	11.2	29799.	29.6	2.655	75.9	.2144	-48.3			812.6	5.9	214.
115	10.7	30096.	28.9	2.711	74.2	.2154	-48.3			823.2	6.2	154.
116	10.1	30473.	27.8	2.763	71.5	.2167	-48.3			836.7	7.8	109.
117	9.6	30817.	26.4	2.764	67.8	.2178	-48.7			847.7	2.1	145.
118	9.1	31167.	25.0	2.759	64.2	.2189	-48.3			862.3	6.9	188.
119	8.6	31483.	23.5	2.723	60.0	.2198	-47.2			878.2	7.9	143.
120	8.3	31764.	22.1	2.669	56.2	.2206	-46.5			891.8	7.6	97.
121	8.0	31968.	20.9	2.606	53.3	.2211	-46.2			900.8	9.0	75.
122	7.8	32133.	21.0	2.682	53.3	.2215	-46.1			907.8	8.2	52.
123	7.7	32258.	21.0	2.734	53.3	.2218	-45.4			915.6	5.1	20.
124	7.5	32384.	21.0	2.785	53.2	.2222	-44.6			923.4	2.6	351.
125	7.4	32554.	21.1	2.871	53.1	.2226	-43.9			933.0	1.1	34.
126	7.2	32683.	20.7	2.871	52.1	.2229	-43.4			940.5	.6	26.
127	7.2	32726.	20.8	2.901	52.1	.2230	-42.7			945.1	.6	26.

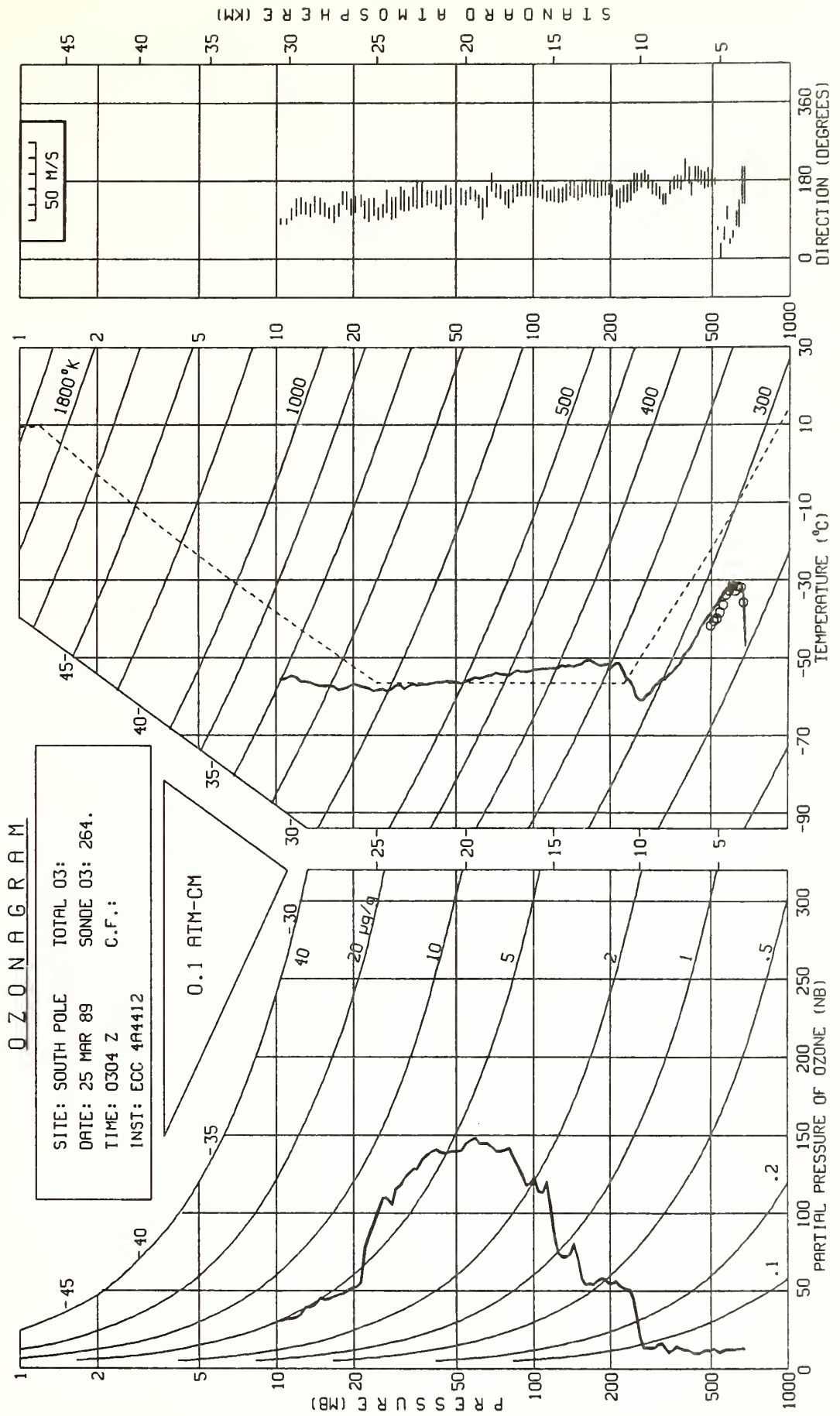
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
10.3	19.3	64.9	111.5	115.8	59.1	29.6	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110116038903		99			ECC TOTAL O3 FROM SONDE DATA 238
ISNNYYMMJJGG	PPPP	P3TTTDDFF	FFPPPP	P3TTTDDFF	FFPPPP P3TTTDDFF FFPPPP P3TTTDDFF
1110216038903	691	13-44		500	8-40102 4 300 22-59108 7 200 64-48199 2
1110316038903	150	86-48200	3	100	95-51226 4 70140-53210 5 50130-53190 3
1110416038903	30	87-53220	320.0	48-53244	210.0 28-48113 7 673 13-35227 17
1110516038903	640	11-32181	5	572	10-34338 4 390 10-51180 4 313 13-58107 9
1110616038903	273	53-55217	2	237	55-50185 3 223 52-49203 3 216 40-48178 2
1110716038903	184	54-48197	4	166	82-48185 2 144 65-49182 2 139 63-49193 2
1110816038903	134	67-50192	3	129	97-49182 3 125 82-49196 2 121 79-50217 3
1110916038903	116	92-49193	4	89108-52223	5 83128-52235 5 57145-53262 6
1111016038903	44123-53233	5	41	99-53226	2 37 91-53182 216.6 39-50197 1
1111116038903	12.9	34-52180	4	7.8	21-46 52 8 7.2 21-43 26 1



STATION: SOUTH POLE LAUNCH DATE: 25 MAR 89 304 Z ECC SONDE: 4A4412
 SURFACE CONDITIONS: PRESSURE 681.3 MB, TEMPERATURE -47.2 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 24.0 C AT 70.4 ORD;
 O3 ORD ZERO 29.0, BKGND 30.1, CAL 62.9; O3 BKGND 0.170 MICROAMP; FLOW RATE 27.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 264.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	681.3	2835.	12.5	.018	32.0	.0000	-47.2			252.1		
1	667.0	2979.	13.1	.020	31.7	.0002	-34.1	-36.0	84.7	268.4	23.9	169.
2	652.0	3140.	12.7	.019	30.2	.0004	-31.2	-32.1	93.4	273.4	23.9	169.
3	635.0	3327.	12.7	.020	30.2	.0007	-30.9	-31.8	93.5	275.8	17.6	103.
4	620.0	3496.	12.2	.020	29.3	.0009	-32.1	-33.0	93.0	276.3	9.7	92.
5	603.0	3693.	12.3	.020	29.3	.0012	-30.8	-31.6	93.6	280.1	4.8	55.
6	587.0	3884.	12.3	.021	29.5	.0015	-32.1	-33.0	93.0	280.7	3.4	39.
7	571.0	4079.	12.4	.022	29.8	.0017	-33.0	-34.0	92.6	281.8	8.5	105.
8	556.0	4265.	11.4	.021	27.5	.0020	-33.8	-36.6	77.0	283.0	8.3	57.
9	540.0	4470.	10.5	.019	25.4	.0022	-35.0	-38.5	71.6	284.0	10.1	16.
10	526.0	4652.	11.6	.022	28.2	.0025	-36.6	-40.1	71.7	284.2	2.2	69.
11	511.0	4852.	12.7	.025	31.1	.0027	-37.4	-40.8	72.1	285.6	4.8	179.
12	496.0	5058.	11.7	.024	28.9	.0030	-38.8	-41.9	73.9	286.3	10.4	185.
13	480.0	5282.	11.8	.025	29.1	.0033	-39.9			287.7	12.7	187.
14	466.0	5484.	11.3	.024	28.2	.0036	-41.3			288.4	10.8	181.
15	452.0	5690.	9.9	.022	24.7	.0039	-42.5			289.4	9.8	187.
16	440.0	5871.	9.9	.023	25.0	.0041	-44.4			289.3	10.3	194.
17	427.0	6072.	10.0	.023	25.4	.0043	-45.8			290.0	9.7	195.
18	415.0	6261.	11.0	.027	28.1	.0045	-47.5			290.1	8.4	160.
19	405.0	6422.	12.0	.030	30.9	.0047	-48.4			291.0	10.2	192.
20	392.0	6636.	12.1	.031	31.2	.0050	-49.5			292.3	12.9	207.
21	378.0	6873.	13.2	.035	34.4	.0054	-51.8			292.3	9.1	175.
22	367.0	7064.	14.2	.039	37.1	.0057	-52.5			293.8	8.8	178.
23	355.0	7278.	12.2	.034	32.0	.0061	-53.8			294.9	8.3	175.
24	343.0	7499.	10.2	.030	27.0	.0064	-54.5			296.9	7.8	162.
25	330.0	7746.	13.8	.042	36.7	.0067	-55.8			298.4	7.2	138.
26	322.0	7902.	16.3	.051	43.4	.0070	-55.6			300.7	7.1	137.
27	312.0	8103.	15.7	.050	41.8	.0074	-56.6			302.1	7.5	152.
28	302.0	8309.	13.7	.045	36.8	.0078	-57.3			303.9	7.5	159.
29	292.0	8521.	13.3	.046	35.8	.0081	-59.0			304.4	8.7	165.
30	282.0	8739.	13.4	.048	36.2	.0085	-59.7			306.4	8.8	178.
31	273.0	8941.	13.4	.049	36.3	.0088	-61.0			307.5	7.8	191.
32	264.0	9150.	20.7	.078	56.4	.0092	-61.0			310.4	9.4	181.
33	255.0	9366.	34.3	.135	93.1	.0099	-60.1			314.9	11.7	177.
34	248.0	9540.	45.4	.183	121.6	.0107	-57.6			321.0	12.6	175.
35	240.0	9748.	50.8	.212	135.0	.0119	-55.9			326.6	13.5	158.
36	233.0	9937.	51.2	.220	135.6	.0130	-55.3			330.4	11.5	151.
37	226.0	10132.	52.0	.230	136.6	.0143	-53.5			336.0	11.2	151.
38	218.0	10365.	53.7	.246	139.9	.0157	-51.5			342.6	12.7	139.
39	211.0	10577.	56.4	.267	146.9	.0171	-51.6			345.6	10.6	140.
40	203.0	10827.	55.0	.271	144.1	.0188	-52.7			347.7	8.0	157.
41	196.8	11028.	55.3	.281	144.3	.0202	-51.8			352.3	7.4	161.
42	190.5	11239.	57.6	.302	150.2	.0216	-51.9			355.3	8.5	161.
43	184.1	11460.	58.1	.316	152.0	.0232	-52.2			358.3	9.7	162.
44	177.8	11686.	56.5	.318	147.5	.0247	-51.8			362.6	9.7	158.
45	172.0	11901.	54.2	.315	141.0	.0262	-51.3			366.9	9.9	161.
46	166.0	12132.	54.7	.330	141.9	.0277	-50.7			371.6	10.2	165.
47	160.2	12364.	54.3	.339	141.1	.0292	-51.0			374.9	9.4	165.
48	154.7	12591.	58.3	.377	152.0	.0307	-51.8			377.3	9.4	158.
49	149.5	12812.	70.8	.474	184.8	.0324	-52.1			380.5	9.8	152.

STATION: SOUTH POLE				LAUNCH DATE: 25 MAR 89				304 Z	ECC	SONDE: 4A4412			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	144.2	13046.	80.0	.555	209.4	.0344	-52.5			383.6	9.9	158.	
51	139.0	13283.	73.7	.530	192.6	.0367	-52.2			388.2	9.7	162.	
52	134.3	13506.	72.1	.537	188.6	.0387	-52.4			391.8	10.7	154.	
53	129.9	13721.	72.1	.555	188.3	.0405	-52.2			395.8	10.1	148.	
54	125.3	13954.	74.1	.591	194.3	.0426	-52.9			398.8	9.4	146.	
55	121.0	14179.	84.5	.698	221.4	.0447	-52.9			402.8	9.3	148.	
56	116.7	14413.	104.8	.898	274.6	.0472	-52.9			407.0	7.2	146.	
57	112.6	14644.	119.6	1.062	313.6	.0503	-53.0			410.9	7.2	145.	
58	108.6	14877.	113.2	1.042	296.9	.0536	-53.0			415.1	9.5	155.	
59	104.5	15125.	113.9	1.090	299.1	.0570	-53.2			419.4	10.9	160.	
60	100.5	15376.	122.8	1.222	322.4	.0605	-53.3			423.8	9.2	160.	
61	97.2	15591.	119.0	1.224	313.0	.0637	-53.7			427.2	7.8	159.	
62	93.7	15827.	117.9	1.258	310.4	.0672	-53.8			431.4	9.5	163.	
63	90.2	16071.	124.4	1.379	327.5	.0707	-53.8			436.2	9.6	163.	
64	86.9	16311.	130.6	1.503	343.2	.0744	-53.5			441.5	8.6	159.	
65	83.5	16567.	135.7	1.625	357.8	.0785	-54.1			445.2	11.7	150.	
66	80.3	16818.	141.5	1.762	374.2	.0827	-54.8			448.9	11.9	139.	
67	77.5	17045.	140.4	1.812	370.7	.0867	-54.5			454.1	8.7	141.	
68	74.7	17281.	139.8	1.871	369.0	.0907	-54.5			458.9	9.1	155.	
69	71.5	17561.	139.8	1.955	368.5	.0955	-54.1			465.4	9.3	158.	
70	68.8	17810.	142.2	2.068	376.0	.0998	-54.8			469.2	12.2	177.	
71	66.1	18068.	144.8	2.192	383.1	.1043	-54.9			474.3	13.7	144.	
72	63.6	18311.	144.5	2.272	383.2	.1086	-55.4			478.4	13.7	116.	
73	61.4	18534.	144.7	2.357	384.0	.1125	-55.6			482.8	8.5	132.	
74	59.5	18735.	148.2	2.491	392.6	.1161	-55.3			487.9	7.1	146.	
75	57.0	19011.	146.8	2.576	390.1	.1211	-55.9			492.5	8.2	152.	
76	54.6	19282.	145.0	2.656	385.9	.1260	-56.3			497.8	9.9	142.	
77	52.4	19548.	140.1	2.676	373.8	.1308	-56.8			502.6	10.4	143.	
78	49.9	19848.	139.5	2.793	371.9	.1360	-56.6			509.9	10.9	143.	
79	47.7	20143.	139.6	2.928	371.9	.1411	-56.4			517.1	10.6	145.	
80	45.5	20434.	138.3	3.038	368.5	.1461	-56.4			523.9	12.1	147.	
81	43.5	20721.	138.7	3.187	369.7	.1510	-56.6			530.3	12.0	136.	
82	41.9	20968.	140.7	3.362	375.1	.1553	-56.6			536.2	9.9	139.	
83	40.1	21248.	139.4	3.481	372.1	.1602	-56.9			542.2	7.8	143.	
84	38.5	21490.	137.3	3.563	366.8	.1643	-57.1			547.7	9.5	142.	
85	36.9	21764.	134.7	3.649	359.9	.1689	-57.1			554.5	15.8	148.	
86	35.2	22069.	127.9	3.637	342.1	.1740	-57.3			561.8	18.3	149.	
87	34.1	22271.	128.4	3.769	342.8	.1772	-56.9			567.8	12.4	144.	
88	32.7	22537.	125.4	3.840	336.0	.1814	-57.6			572.9	8.8	128.	
89	31.3	22801.	121.9	3.891	327.6	.1855	-58.3			577.9	13.1	134.	
90	30.4	22998.	117.9	3.883	315.0	.1884	-57.1			586.4	14.8	139.	
91	29.1	23259.	115.4	3.962	308.8	.1922	-57.5			592.4	13.6	119.	
92	28.1	23487.	105.6	3.758	283.7	.1954	-58.3			596.1	14.6	117.	
93	26.8	23776.	109.8	4.091	295.8	.1992	-58.8			602.6	14.5	133.	
94	25.9	24000.	109.7	4.236	294.9	.2022	-58.3			610.2	9.1	112.	
95	24.9	24256.	101.8	4.093	273.9	.2057	-58.5			616.8	8.1	104.	
96	23.9	24510.	93.5	3.915	251.9	.2088	-58.8			623.0	11.2	120.	
97	22.9	24764.	86.5	3.772	232.4	.2117	-58.1			632.3	14.8	113.	
98	22.0	25018.	77.8	3.532	208.7	.2143	-57.8			640.6	11.3	113.	
99	21.3	25241.	55.1	2.592	147.6	.2163	-57.6			647.6	7.5	134.	
100	20.3	25527.	52.5	2.584	140.2	.2183	-57.1			657.6	11.0	126.	
101	19.5	25781.	51.7	2.649	138.1	.2199	-57.3			664.7	10.9	120.	
102	18.8	26035.	50.0	2.667	134.0	.2215	-58.0			670.3	11.4	135.	
103	18.1	26257.	48.2	2.663	129.7	.2229	-58.3			675.9	8.3	140.	
104	17.5	26479.	47.7	2.729	128.3	.2242	-58.5			682.2	8.2	113.	

STATION: SOUTH POLE			LAUNCH DATE: 25 MAR 89			304 Z	ECC SONDE: 4A4412					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	16.8	26734.	46.5	2.771	124.4	.2257	-57.6			692.9	11.4	103.
106	16.0	27021.	45.2	2.818	121.0	.2274	-57.5			702.6	7.4	106.
107	15.4	27278.	44.4	2.883	118.8	.2288	-57.5			710.8	8.7	114.
108	14.8	27536.	45.3	3.065	121.3	.2302	-57.5			719.1	11.2	122.
109	14.1	27828.	41.0	2.904	109.5	.2318	-57.1			729.8	10.9	126.
110	13.6	28089.	39.6	2.923	105.7	.2331	-56.6			740.2	8.9	112.
111	13.0	28352.	39.7	3.054	105.7	.2344	-56.4			749.6	8.4	117.
112	12.5	28617.	34.8	2.793	92.6	.2357	-56.3			759.2	10.6	123.
113	12.0	28884.	33.1	2.770	87.6	.2368	-55.3			771.8	11.1	119.
114	11.5	29154.	32.2	2.810	85.2	.2379	-54.9			782.4	7.8	103.
115	10.9	29461.	32.2	2.949	85.6	.2391	-55.6			790.8	4.2	86.
116	10.4	29804.	30.9	2.986	82.2	.2405	-55.9			801.9	4.2	86.

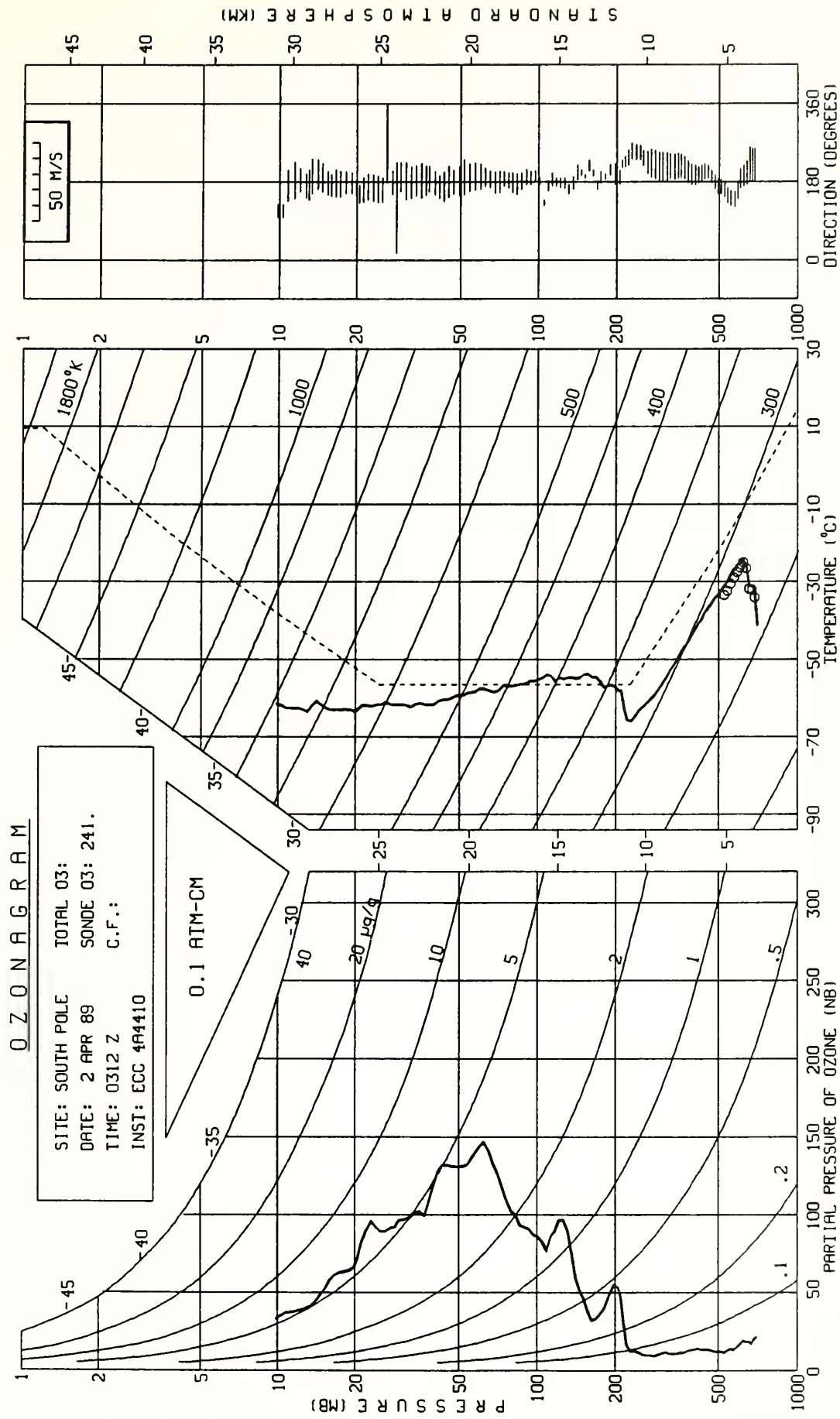
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
12.1	13.7	59.0	123.9	137.4	77.7	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110125038903			99		ECC TOTAL O3 FROM SONDE DATA 264
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110225038903	681	13-47		500	12-38183 9 300 14-58160 8 200 55-52159 8
1110325038903	150	70-52153	10	100	122-53160 9 70141-54168 11 50140-57143 11
1110425038903	30	117-57133	1420.0	52-57124	11 667 13-34169 24 652 13-31169 24
1110525038903	603	12-31 55	5	378	13-52175 9 264 21-61181 9 248 45-58175 13
1110625038903	218	54-52139	13	160	54-51165 9 144 80-53158 10 125 74-53146 9
1110725038903	113	120-53145	7	105	114-53160 11 94118-54163 10 80142-55139 12
1110825038903	60	148-55146	7	40	139-57143 828.1106-58117 1525.9110-58112 9
1110925038903	23.9	94-59120	1122.0	78-58113	1121.3 55-58134 817.5 48-59113 8
1111025038903	11.5	32-55103	810.4	31-56	86 4



STATION: SOUTH POLE LAUNCH DATE: 2 APR 89 312 Z ECC SONDE: 4A4410
 SURFACE CONDITIONS: PRESSURE 702.9 MB, TEMPERATURE -41.5 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 22.0 C AT 70.6 ORD;
 O3 ORD ZERO 29.0, BKGND 29.3, CAL 63.0; O3 BKGND 0.046 MICROAMP; FLOW RATE 27.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 241.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	702.9	2835.	21.5	.031	53.7	.0000	-41.5			256.2		
1	687.0	2993.	20.2	.029	48.4	.0004	-32.1	-34.3	82.4	268.4	20.7	219.
2	670.0	3171.	17.1	.026	40.9	.0008	-31.4	-32.3	93.3	271.0	20.7	219.
3	654.0	3342.	18.5	.028	44.0	.0011	-31.2	-32.1	93.4	273.2	22.0	221.
4	638.0	3519.	18.5	.029	43.1	.0014	-26.1	-26.8	95.3	280.9	15.3	200.
5	621.0	3715.	19.0	.031	44.2	.0018	-24.6	-25.2	95.8	284.9	13.1	194.
6	603.0	3929.	16.4	.027	38.1	.0023	-25.2	-26.6	89.2	286.5	12.6	187.
7	589.0	4100.	14.8	.025	34.7	.0026	-26.1	-27.8	87.1	287.3	11.0	160.
8	572.0	4311.	13.3	.023	31.2	.0029	-27.2	-29.2	84.0	288.5	10.1	140.
9	555.0	4528.	13.8	.025	32.5	.0032	-28.5	-30.8	82.3	289.5	9.8	143.
10	540.0	4724.	12.8	.024	30.3	.0035	-30.4	-32.6	82.4	289.5	10.1	149.
11	526.0	4910.	11.7	.022	28.0	.0038	-31.2	-33.7	79.5	290.8	9.5	163.
12	510.0	5129.	12.2	.024	29.3	.0040	-32.4			291.9	9.7	169.
13	496.0	5325.	12.2	.025	29.4	.0043	-33.6			292.8	9.2	169.
14	481.0	5539.	12.2	.025	29.4	.0046	-34.8			293.9	8.9	180.
15	467.0	5745.	13.1	.028	31.8	.0049	-36.0			294.8	7.9	192.
16	453.0	5956.	13.5	.030	33.0	.0052	-37.3			295.7	8.2	203.
17	440.0	6157.	13.5	.031	33.3	.0055	-38.4			296.8	9.9	203.
18	428.0	6346.	13.5	.032	33.5	.0058	-40.2			296.9	10.1	200.
19	417.0	6524.	14.0	.034	34.7	.0061	-41.1			297.9	10.8	196.
20	405.0	6721.	13.5	.033	33.8	.0064	-42.7			298.4	12.4	196.
21	392.0	6941.	13.0	.033	32.8	.0067	-44.4			299.0	13.0	197.
22	380.0	7148.	12.5	.033	31.7	.0070	-45.9			299.6	13.8	203.
23	368.0	7361.	11.5	.031	29.3	.0073	-47.2			300.6	14.3	213.
24	357.0	7561.	11.4	.032	29.3	.0076	-48.7			301.2	15.5	217.
25	347.0	7748.	10.9	.031	28.2	.0079	-50.2			301.7	16.4	217.
26	336.0	7957.	10.9	.032	28.4	.0081	-51.8			302.3	16.1	215.
27	324.0	8192.	10.9	.034	28.6	.0085	-53.3			303.3	16.4	215.
28	315.0	8373.	11.8	.037	31.3	.0087	-54.9			303.5	18.3	214.
29	303.0	8620.	10.9	.036	28.9	.0090	-56.6			304.6	19.0	214.
30	293.0	8832.	10.3	.035	27.7	.0093	-58.0			305.6	18.0	216.
31	284.0	9028.	9.3	.033	25.2	.0096	-59.4			306.3	18.7	220.
32	273.0	9275.	9.8	.036	26.6	.0099	-60.6			308.0	17.7	223.
33	264.0	9483.	9.8	.037	26.6	.0101	-61.7			309.3	14.1	224.
34	255.0	9698.	10.2	.040	28.0	.0104	-62.5			311.3	9.9	235.
35	247.0	9894.	11.6	.047	32.1	.0107	-63.4			312.8	9.4	248.
36	239.0	10095.	12.6	.053	34.9	.0110	-64.8			313.6	10.3	249.
37	230.0	10329.	12.6	.055	35.2	.0113	-66.2			315.0	10.8	251.
38	222.0	10544.	16.8	.076	46.8	.0117	-65.8			318.8	10.4	236.
39	216.0	10711.	30.9	.143	84.9	.0121	-62.8			325.9	6.4	227.
40	210.0	10887.	47.1	.224	126.7	.0129	-58.3			335.6	4.7	221.
41	205.0	11038.	53.5	.261	143.8	.0138	-58.3			337.9	9.3	191.
42	197.5	11274.	54.9	.278	146.7	.0154	-57.1			343.4	13.2	198.
43	189.0	11552.	47.6	.252	127.2	.0172	-56.9			348.0	7.0	208.
44	180.7	11836.	39.3	.217	105.3	.0188	-57.5			351.7	3.6	192.
45	174.0	12076.	35.3	.203	93.9	.0200	-55.8			358.3	7.8	191.
46	168.1	12296.	33.1	.197	87.6	.0209	-54.8			363.5	5.4	172.
47	162.4	12517.	32.2	.198	85.1	.0218	-54.8			367.1	4.2	201.
48	156.7	12746.	38.3	.244	100.9	.0228	-54.0			372.2	6.8	218.
49	151.3	12971.	46.3	.306	122.1	.0239	-54.1			375.7	2.7	193.

STATION: SOUTH POLE			LAUNCH DATE: 2 APR 89 312 Z				ECC SONDE: 4A4410					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	146.1	13195.	51.2	.350	135.4	.0252	-54.9			378.0	3.9	200.
51	141.0	13422.	58.9	.418	155.9	.0266	-55.1			381.6	9.5	202.
52	136.0	13652.	75.6	.556	200.0	.0284	-54.9			385.9	8.3	178.
53	131.0	13892.	90.1	.688	238.4	.0308	-54.9			390.0	6.4	163.
54	126.1	14135.	96.8	.768	256.5	.0335	-55.3			393.7	6.9	177.
55	121.3	14383.	96.3	.794	254.8	.0364	-54.9			398.7	6.3	178.
56	117.0	14613.	89.2	.762	237.0	.0391	-55.9			401.0	5.6	179.
57	113.0	14835.	86.1	.762	227.4	.0415	-54.6			407.4	8.4	186.
58	108.9	15072.	77.1	.708	203.3	.0439	-54.1			412.7	6.5	171.
59	104.9	15311.	82.5	.786	218.2	.0462	-54.9			415.6	3.7	132.
60	101.0	15553.	85.9	.850	227.8	.0487	-55.4			419.2	4.4	182.
61	97.0	15811.	87.0	.897	231.1	.0514	-55.8			423.4	7.0	193.
62	93.3	16058.	90.7	.972	240.8	.0541	-55.8			428.1	8.6	188.
63	89.7	16309.	92.0	1.026	245.2	.0569	-56.6			431.3	10.1	191.
64	86.1	16568.	93.2	1.082	248.4	.0598	-56.6			436.4	10.9	182.
65	82.7	16824.	100.0	1.209	267.1	.0628	-56.9			440.7	13.2	175.
66	79.5	17074.	102.3	1.287	273.4	.0660	-57.1			445.4	12.5	178.
67	76.5	17317.	108.8	1.422	290.6	.0691	-57.1			450.3	9.6	183.
68	73.9	17536.	115.8	1.567	309.3	.0720	-56.9			455.1	9.6	186.
69	71.0	17789.	124.2	1.749	333.7	.0757	-58.3			457.4	13.2	180.
70	67.8	18077.	132.7	1.957	357.2	.0802	-58.7			462.7	13.8	178.
71	65.0	18346.	140.9	2.169	378.6	.0847	-58.3			469.2	10.8	186.
72	62.3	18614.	146.8	2.357	393.7	.0894	-57.8			476.1	12.0	191.
73	59.8	18870.	143.3	2.396	384.1	.0941	-57.8			481.6	16.3	192.
74	57.0	19173.	138.1	2.424	371.6	.0994	-58.7			486.3	17.6	192.
75	54.2	19489.	132.1	2.438	355.9	.1048	-58.8			493.0	17.8	190.
76	51.7	19780.	131.0	2.532	354.0	.1096	-59.5			497.9	23.0	191.
77	49.6	20048.	130.9	2.641	353.9	.1140	-59.5			504.0	18.9	182.
78	47.0	20379.	131.1	2.789	355.1	.1195	-60.1			510.4	15.6	179.
79	44.9	20661.	131.8	2.933	358.1	.1241	-60.6			515.8	20.3	180.
80	43.2	20904.	131.6	3.046	357.5	.1281	-60.6			521.5	19.1	169.
81	41.6	21145.	127.9	3.077	347.9	.1321	-61.0			526.4	15.0	168.
82	39.8	21416.	117.0	2.941	319.7	.1364	-61.9			530.8	15.1	177.
83	37.9	21718.	105.4	2.782	288.1	.1408	-61.9			538.2	16.7	187.
84	36.9	21885.	99.1	2.687	270.9	.1429	-61.9			542.4	18.9	183.
85	35.3	22150.	102.0	2.887	278.3	.1463	-61.5			550.0	22.0	183.
86	33.7	22446.	101.1	3.001	276.4	.1501	-61.9			556.6	19.8	183.
87	32.3	22707.	98.2	3.041	269.2	.1535	-62.5			561.9	20.6	178.
88	30.8	22999.	96.9	3.146	264.8	.1571	-61.9			571.0	23.6	182.
89	29.4	23289.	96.4	3.280	263.5	.1607	-61.9			578.7	19.1	191.
90	28.3	23514.	91.8	3.239	250.9	.1634	-61.9			584.8	58.2	120.
91	27.3	23739.	91.6	3.352	250.5	.1660	-61.9			590.8	15.5	178.
92	26.0	24059.	89.2	3.436	243.1	.1698	-61.3			601.2	49.9	268.
93	25.0	24282.	89.3	3.566	244.2	.1723	-61.9			605.8	16.2	162.
94	24.0	24537.	92.0	3.829	251.4	.1752	-61.9			613.0	16.9	163.
95	23.1	24791.	95.7	4.150	262.0	.1781	-62.3			619.2	17.1	166.
96	22.0	25077.	89.6	4.069	245.1	.1816	-62.1			628.0	16.8	168.
97	21.1	25331.	82.2	3.890	224.9	.1844	-62.1			635.4	16.1	162.
98	20.4	25553.	71.7	3.518	197.1	.1866	-63.2			638.5	11.5	152.
99	19.9	25712.	66.7	3.359	183.9	.1880	-63.8			641.4	10.4	166.
100	19.1	25965.	64.4	3.379	177.1	.1901	-63.2			650.8	13.3	177.
101	18.1	26283.	63.5	3.508	174.7	.1927	-63.2			660.5	14.7	178.
102	17.2	26603.	62.8	3.655	172.6	.1953	-63.2			670.4	16.1	175.
103	16.6	26827.	61.3	3.699	168.5	.1971	-63.2			677.4	17.9	177.
104	15.9	27085.	57.7	3.631	158.8	.1991	-63.2			685.6	14.3	172.

STATION: SOUTH POLE			LAUNCH DATE: 2 APR 89 312 Z				ECC SONDE: 4A4410					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	15.4	27279.	53.3	3.463	146.2	.2005	-62.8			693.1	14.9	177.
106	14.7	27573.	48.6	3.311	132.9	.2024	-61.9			705.7	18.5	190.
107	14.1	27804.	44.9	3.175	122.2	.2038	-61.0			716.4	19.6	197.
108	13.4	28136.	41.2	3.075	112.9	.2056	-62.5			722.3	22.6	193.
109	13.0	28335.	40.4	3.112	111.4	.2067	-63.8			724.4	19.5	173.
110	12.7	28469.	39.6	3.118	109.0	.2073	-63.4			730.3	15.5	171.
111	12.0	28805.	38.5	3.203	105.6	.2090	-62.8			743.8	15.0	184.
112	11.4	29112.	37.7	3.295	103.4	.2105	-62.8			754.5	23.7	184.
113	10.8	29491.	37.3	3.470	102.5	.2123	-62.8			767.9	20.3	172.
114	10.3	29771.	35.3	3.434	96.5	.2136	-62.1			780.7	8.6	113.
115	9.8	30055.	33.2	3.381	90.7	.2149	-61.7			792.4	8.6	113.

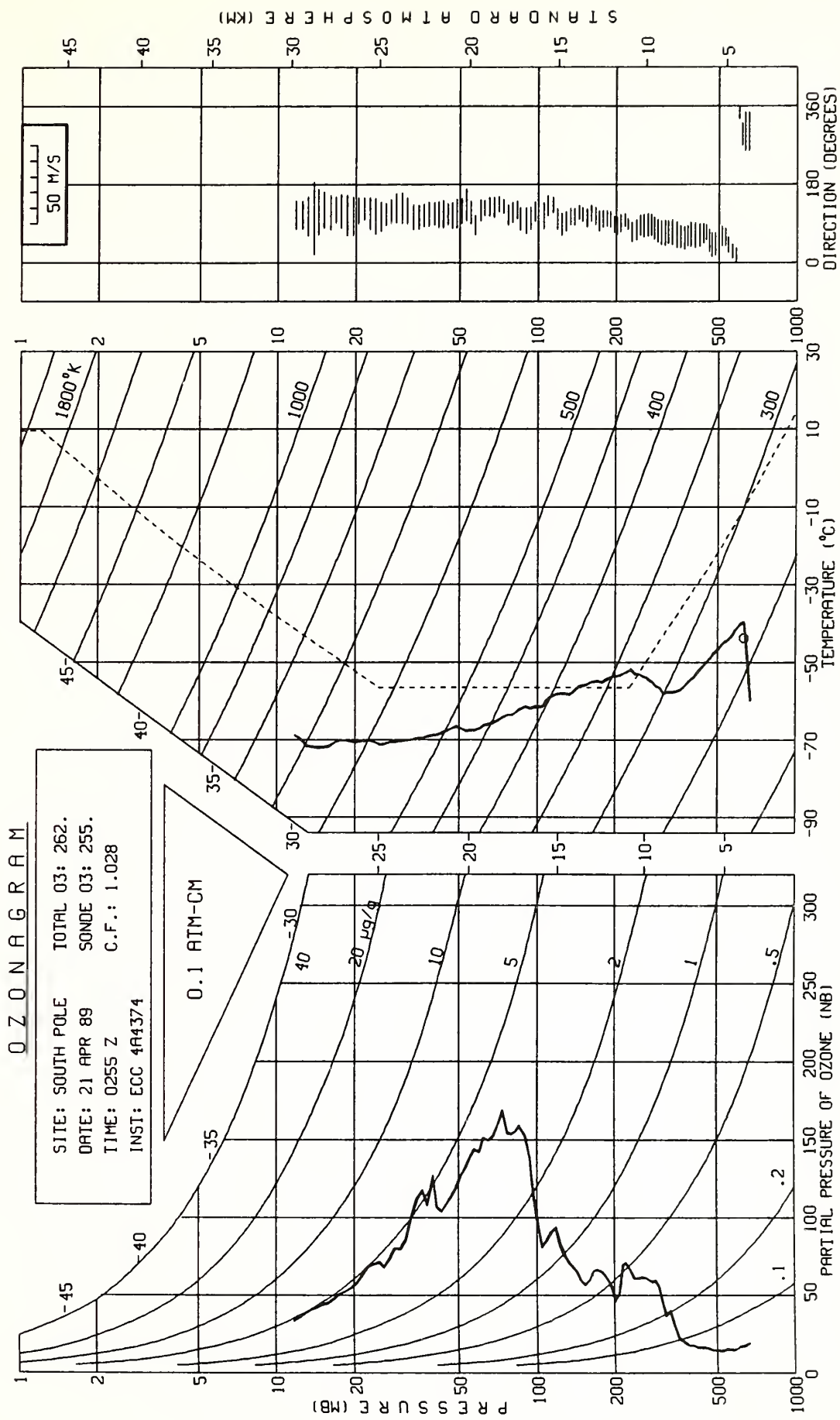
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
15.7	11.6	43.1	100.3	122.4	80.0	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX XP T CORR	COMMENTS
1110102048903	99	ECC TOTAL O3 FROM SONDE DATA 241
ISNNYYMMJJGG	PPPP P3TTTDDDDFFPPPP	P3TTTDDDDFFPPPP P3TTTDDDDFFPPPP P3TTTDDDDFFPPPP
1110202048903	703 22-42	700 21-40 40 4 500 12-33169 9 300 11-57215 19
1110302048903	200 54-58196 12	150 48-54195 3 100 86-55185 5 70127-58179 13
1110402048903	50131-60184 20	30 97-62187 2120.0 68-64162 1110.0 34-62113 9
1110502048903	687 20-32219 21	654 19-31221 22 638 19-26200 15 621 19-25194 13
1110602048903	230 13-66251 11	222 17-66236 10 210 47-58221 5 162 32-55201 4
1110702048903	141 59-55202 10	131 90-55163 6 126 97-55177 7 109 77-54171 7
1110802048903	86 93-57182 11	62147-58191 12 43132-61169 19 37 99-62183 19
1110902048903	26.0 89-61268 5023.1	96-62166 1714.1 45-61197 2013.0 40-64173 20
1111002048903	9.8 33-62113 9	



STATION: SOUTH POLE LAUNCH DATE: 21 APR 89 255 Z ECC SONDE: 4A4374
 SURFACE CONDITIONS: PRESSURE 670.8 MB, TEMPERATURE -60.1 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.5 ORD; TBOX 21.0 C AT 70.5 ORD;
 O3 ORD ZERO 30.3, BKGND 30.7, CAL 65.5; O3 BKGND 0.060 MICROAMP; FLOW RATE 26.4 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 262.; SONDE TOTAL O3 255.; C.F. 1.028

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	670.8	2835.	19.4	.029	52.8	.0000	-60.1			238.8		
1	652.0	3017.	18.1	.028	46.6	.0004	-48.8			253.5	24.4	302.
2	631.0	3237.	17.2	.027	42.5	.0009	-39.8	-44.0	65.3	266.2	24.4	302.
3	613.0	3434.	17.1	.028	42.4	.0013	-40.3			267.8	14.5	296.
4	597.0	3614.	15.6	.026	38.8	.0016	-41.3			268.7	8.1	345.
5	580.0	3810.	14.7	.025	36.7	.0020	-42.2			269.8	9.3	17.
6	563.0	4011.	15.1	.027	38.0	.0023	-43.7			270.3	9.1	26.
7	545.0	4228.	15.2	.028	38.4	.0027	-44.7			271.8	10.3	41.
8	530.0	4415.	14.2	.027	35.9	.0030	-45.0			273.5	11.3	58.
9	513.0	4632.	14.2	.028	36.1	.0034	-46.0			274.8	12.7	61.
10	500.0	4803.	14.6	.029	37.2	.0037	-47.0			275.7	15.4	52.
11	485.0	5004.	14.6	.030	37.4	.0040	-47.8			277.2	14.5	43.
12	471.0	5197.	15.4	.033	39.8	.0044	-49.0			277.9	15.2	41.
13	459.0	5366.	15.9	.035	41.0	.0047	-49.8			279.0	14.4	51.
14	448.0	5525.	16.3	.036	42.5	.0050	-50.7			279.8	9.8	70.
15	438.0	5671.	16.3	.037	42.7	.0053	-51.4			280.7	12.6	67.
16	421.0	5928.	16.5	.039	43.0	.0058	-52.7			282.3	14.8	63.
17	406.0	6161.	17.8	.044	46.8	.0062	-54.0			283.6	16.0	62.
18	390.0	6419.	17.8	.046	47.0	.0068	-54.9			285.6	15.4	64.
19	380.0	6585.	19.1	.050	50.9	.0072	-55.8			286.5	13.3	61.
20	369.0	6771.	21.0	.057	56.0	.0076	-56.8			287.7	14.6	57.
21	357.0	6981.	22.8	.064	61.0	.0082	-57.4			289.7	14.8	60.
22	344.0	7215.	30.1	.088	80.6	.0089	-57.7			292.3	16.3	64.
23	331.0	7458.	39.8	.120	106.7	.0099	-57.9			295.2	15.9	69.
24	320.0	7671.	37.0	.116	99.4	.0109	-57.9			298.0	14.8	70.
25	310.0	7871.	45.6	.147	122.5	.0119	-58.3			300.2	16.2	68.
26	300.0	8078.	55.3	.184	147.6	.0131	-56.8			305.2	15.1	68.
27	290.0	8293.	59.5	.205	158.7	.0146	-56.4			308.7	14.7	73.
28	282.0	8471.	58.6	.208	155.3	.0159	-55.4			312.7	14.3	79.
29	274.0	8655.	60.1	.219	158.8	.0172	-54.9			316.0	13.6	87.
30	266.0	8844.	61.2	.230	161.4	.0186	-54.2			319.7	14.9	87.
31	257.0	9065.	61.6	.240	162.2	.0202	-53.8			323.3	14.9	85.
32	249.0	9269.	61.1	.245	160.3	.0218	-53.3			327.1	13.2	85.
33	240.0	9506.	61.0	.254	160.1	.0235	-53.2			330.8	13.5	76.
34	231.0	9753.	66.8	.289	174.6	.0254	-52.0			336.2	12.7	71.
35	223.0	9981.	70.8	.318	185.5	.0272	-52.7			338.5	7.1	89.
36	217.0	10157.	69.8	.322	183.1	.0288	-53.0			340.6	8.2	98.
37	209.0	10399.	50.5	.242	132.6	.0307	-53.6			343.4	11.2	90.
38	202.0	10618.	46.9	.232	123.4	.0320	-53.8			346.4	11.0	85.
39	196.2	10805.	55.1	.281	145.0	.0331	-53.8			349.3	10.5	88.
40	190.2	11004.	59.2	.311	156.2	.0344	-54.2			351.8	9.9	98.
41	184.0	11216.	62.8	.341	166.0	.0360	-54.7			354.4	10.5	101.
42	178.0	11428.	65.3	.367	173.3	.0376	-55.4			356.6	11.0	100.
43	171.5	11666.	66.6	.389	176.5	.0395	-55.0			361.0	13.3	96.
44	165.7	11885.	65.8	.397	174.2	.0413	-55.2			364.2	11.8	107.
45	159.8	12117.	59.9	.375	158.9	.0431	-55.4			367.8	10.2	113.
46	154.0	12352.	56.6	.367	150.5	.0448	-56.1			370.5	11.7	102.
47	148.0	12605.	59.7	.404	159.0	.0466	-56.3			374.3	9.3	111.
48	143.0	12823.	65.2	.456	173.8	.0483	-56.6			377.4	8.8	115.
49	137.9	13053.	68.3	.495	183.1	.0501	-57.8			379.3	10.6	105.

STATION: SOUTH POLE			LAUNCH DATE: 21 APR 89				255 Z	ECC	SONDE: 4A4374			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	132.9	13285.	71.4	.537	192.1	.0521	-58.5			382.0	10.8	106.
51	128.0	13521.	75.7	.591	203.3	.0543	-58.3			386.6	12.2	94.
52	123.1	13767.	82.9	.673	222.6	.0567	-58.3			390.9	14.2	88.
53	118.4	14012.	93.7	.791	251.8	.0593	-58.4			395.1	13.4	100.
54	113.6	14272.	90.7	.798	244.3	.0623	-58.9			398.9	10.3	132.
55	109.0	14531.	84.9	.779	229.9	.0652	-59.9			401.8	13.0	131.
56	104.9	14769.	81.0	.772	221.0	.0677	-61.6			403.0	16.9	107.
57	100.4	15041.	97.8	.974	267.0	.0706	-61.7			407.8	13.4	112.
58	97.2	15242.	114.4	1.177	312.4	.0732	-61.7			411.6	12.5	117.
59	93.8	15462.	138.2	1.473	377.9	.0766	-62.1			415.1	14.7	103.
60	90.0	15718.	152.5	1.694	416.0	.0812	-61.6			421.0	16.8	97.
61	85.4	16043.	158.7	1.858	434.4	.0876	-62.3			425.9	15.0	101.
62	83.0	16218.	155.5	1.873	427.4	.0911	-63.0			427.8	11.9	121.
63	80.0	16445.	153.6	1.920	423.8	.0956	-63.8			430.8	13.3	116.
64	76.8	16695.	154.1	2.007	425.1	.1005	-63.8			435.9	13.2	109.
65	73.5	16964.	168.1	2.287	465.1	.1059	-64.4			440.0	9.2	130.
66	70.7	17201.	159.4	2.254	442.2	.1109	-65.1			443.6	9.9	134.
67	67.6	17474.	152.1	2.250	423.4	.1164	-65.8			447.7	12.8	127.
68	64.9	17721.	149.6	2.305	417.6	.1213	-66.2			452.0	11.8	129.
69	62.3	17969.	151.1	2.425	421.8	.1260	-66.4			457.1	10.5	126.
70	59.9	18206.	142.1	2.372	398.6	.1306	-67.3			460.2	13.1	119.
71	57.4	18463.	143.7	2.503	403.7	.1354	-67.7			464.9	12.4	85.
72	55.2	18698.	138.3	2.505	388.5	.1398	-67.7			470.1	14.9	115.
73	53.0	18943.	131.8	2.487	370.8	.1441	-67.9			475.0	20.5	132.
74	50.9	19186.	126.7	2.489	355.2	.1483	-67.3			482.1	16.2	118.
75	48.7	19453.	118.6	2.434	331.7	.1526	-66.8			489.5	18.6	113.
76	46.8	19693.	112.9	2.412	316.7	.1563	-67.3			493.8	16.7	108.
77	45.0	19929.	108.8	2.418	306.0	.1597	-67.8			498.1	13.9	111.
78	43.2	20175.	104.1	2.409	293.4	.1632	-68.3			502.6	17.9	111.
79	41.4	20430.	106.5	2.573	301.1	.1667	-68.9			507.4	17.3	110.
80	39.8	20665.	125.3	3.149	354.4	.1701	-69.0			512.8	14.8	112.
81	38.0	20942.	108.5	2.855	307.2	.1745	-69.3			518.9	15.7	111.
82	36.3	21215.	117.2	3.229	332.6	.1785	-69.7			524.7	15.1	109.
83	34.7	21483.	111.9	3.224	317.8	.1825	-69.8			531.1	15.4	105.
84	33.0	21782.	100.2	3.035	284.7	.1868	-70.1			538.1	16.0	105.
85	31.4	22078.	85.6	2.725	243.6	.1906	-70.4			545.0	17.3	119.
86	30.0	22348.	79.9	2.663	227.7	.1936	-70.5			551.8	19.7	125.
87	28.4	22673.	80.0	2.817	228.2	.1971	-70.8			559.7	18.9	125.
88	27.2	22929.	73.1	2.688	208.6	.1997	-70.8			566.7	15.4	117.
89	26.0	23196.	68.0	2.614	194.4	.2022	-71.2			572.8	14.5	111.
90	24.9	23452.	71.6	2.874	205.0	.2046	-71.5			579.1	18.4	106.
91	23.7	23744.	70.1	2.959	200.2	.2073	-70.8			589.4	22.9	106.
92	22.6	24026.	68.4	3.026	194.8	.2099	-70.4			598.7	20.2	112.
93	21.5	24322.	63.2	2.941	180.3	.2126	-70.5			606.9	14.6	124.
94	20.4	24634.	57.5	2.818	164.1	.2151	-70.8			615.2	17.1	119.
95	19.5	24901.	55.2	2.832	157.5	.2171	-70.8			623.2	24.4	107.
96	18.4	25246.	52.5	2.856	149.6	.2196	-70.4			635.0	25.8	109.
97	17.5	25543.	50.7	2.897	144.3	.2217	-70.4			644.1	21.4	118.
98	16.7	25821.	47.9	2.869	136.7	.2235	-70.8			651.4	17.3	122.
99	15.9	26111.	45.1	2.839	129.6	.2253	-71.8			657.4	22.5	115.
100	15.0	26455.	44.2	2.948	127.1	.2274	-72.1			667.5	23.5	121.
101	14.3	26736.	42.3	2.955	121.3	.2290	-72.2			676.2	29.4	116.
102	13.7	26988.	41.0	2.995	117.6	.2304	-72.0			685.5	46.5	102.
103	13.0	27298.	38.8	2.982	111.2	.2321	-71.8			696.3	25.4	106.
104	12.4	27577.	36.4	2.936	103.4	.2335	-70.1			711.7	17.7	109.

STATION: SOUTH POLE LAUNCH DATE: 21 APR 89 255 Z ECC SONDE: 4A4374
 TIME PRESS ALT OZONE OZONE OZDEN TOTOZ TEMP DEWPT HUM POT T WIND WIND
 MIN MB GPM NB PPMV GAMMA ATCM C C % K M/S DEG
 105 11.7 27924. 33.6 2.874 95.1 .2351 -69.0 727.6 17.7 109.

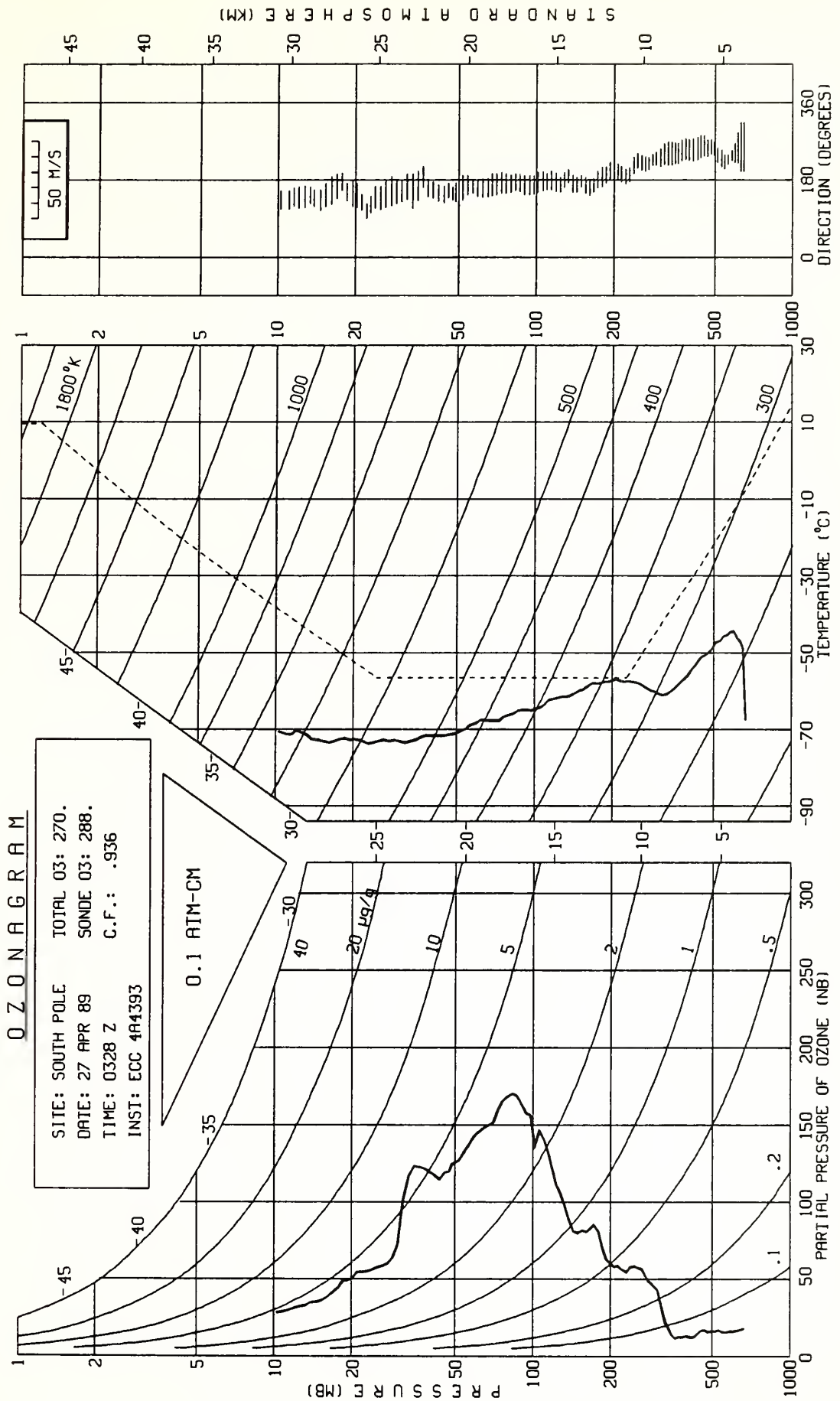
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
15.9	32.7	62.4	127.9	119.2	64.0	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110121048903	00262	991.028	ECC	TOTAL O3 FROM SONDE DATA	255
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110221048903	671	19-60	500	15-47 52 15 300	55-57 68 15 200 50-54 86 11
1110321048903	150	59-56108	10	100100-62113 13	70158-65132 11 50123-67116 17
1110421048903	30	80-71125	2020.0	56-71114 20	652 18-49302 24 631 17-40302 24
1110521048903	369	21-57 57 15	310	46-58 68 16	231 67-52 71 13 217 70-53 98 8
1110621048903	209	50-54 90 11	172	67-55 96 13	128 76-58 94 12 118 94-58100 13
1110721048903	105	81-62107 17	94138-62103	15	90152-62 97 17 77154-64109 13
1110821048903	74168-64130	9	57144-68 85	12	43104-68111 18 41107-69110 17
1110921048903	40125-69112	15	38108-69111	16	36117-70109 15 35112-70105 15
1111021048903	14.3	42-72116	2911.7	34-69109	18



STATION: SOUTH POLE LAUNCH DATE: 27 APR 89 328 Z ECC SONDE: 4A4393
 SURFACE CONDITIONS: PRESSURE 665.3 MB, TEMPERATURE -67.7 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.5 ORD; TBOX 25.0 C AT 72.1 ORD;
 O3 ORD ZERO 34.0, BKGND 34.7, CAL 70.1; O3 BKGND 0.102 MICROAMP; FLOW RATE 27.4 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 270.; SONDE TOTAL O3 288.; C.F. .936

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	665.3	2835.	17.9	.027	50.2	.0000	-67.7			230.9		
1	648.0	3001.	17.4	.027	44.8	.0004	-49.1			253.6	32.0	257.
2	632.0	3165.	16.8	.027	43.2	.0007	-47.3			257.5	32.0	257.
3	615.0	3346.	16.5	.027	41.9	.0011	-46.2			260.8	19.6	255.
4	597.0	3544.	16.0	.027	40.3	.0014	-44.6			264.9	12.6	243.
5	580.0	3738.	16.1	.028	40.7	.0018	-44.8			266.8	7.0	237.
6	562.0	3948.	15.6	.028	39.7	.0022	-45.6			268.3	6.2	227.
7	545.0	4153.	15.7	.029	40.0	.0026	-45.9			270.3	9.1	222.
8	530.0	4338.	16.9	.032	43.2	.0029	-47.1			271.1	11.3	230.
9	512.0	4567.	16.1	.031	41.3	.0034	-47.5			273.2	9.7	238.
10	497.0	4763.	16.5	.033	42.4	.0038	-48.7			274.1	8.3	253.
11	481.0	4977.	15.6	.032	40.5	.0042	-50.0			275.0	9.5	257.
12	467.0	5170.	17.0	.036	44.1	.0045	-50.7			276.5	10.8	254.
13	453.0	5368.	16.6	.037	43.0	.0049	-51.1			278.5	13.4	259.
14	440.0	5557.	14.9	.034	38.8	.0053	-51.9			279.8	14.4	257.
15	427.0	5751.	12.6	.030	33.2	.0056	-53.2			280.6	14.7	253.
16	412.0	5981.	12.3	.030	32.4	.0060	-54.5			281.7	14.5	250.
17	397.0	6217.	13.1	.033	34.9	.0063	-56.2			282.5	13.8	250.
18	385.0	6412.	12.6	.033	33.8	.0067	-57.0			283.9	14.0	252.
19	372.0	6629.	12.6	.034	34.0	.0070	-57.9			285.5	13.9	249.
20	360.0	6835.	11.8	.033	31.9	.0073	-58.9			286.9	13.3	242.
21	350.0	7012.	13.6	.039	36.7	.0076	-59.7			288.1	13.8	242.
22	340.0	7193.	18.3	.054	49.6	.0079	-60.3			289.6	14.8	242.
23	330.0	7378.	22.3	.068	60.7	.0084	-60.9			291.3	14.9	242.
24	318.0	7609.	33.3	.105	90.7	.0091	-61.2			294.1	13.4	240.
25	307.0	7827.	42.9	.140	116.7	.0101	-60.9			297.4	11.6	232.
26	295.0	8075.	46.0	.156	124.8	.0114	-60.3			301.6	8.9	229.
27	286.0	8269.	48.3	.169	130.9	.0126	-60.1			304.7	7.5	227.
28	275.0	8514.	52.4	.191	141.5	.0141	-59.4			309.1	7.9	219.
29	267.0	8699.	56.6	.212	152.5	.0153	-58.9			312.5	9.7	217.
30	258.0	8914.	57.2	.222	153.6	.0169	-58.3			316.4	10.0	221.
31	249.0	9138.	58.4	.235	156.8	.0184	-57.9			320.2	10.1	225.
32	240.0	9370.	57.8	.241	155.0	.0201	-57.7			323.9	10.6	214.
33	231.0	9611.	54.5	.236	145.8	.0218	-57.6			327.7	9.3	192.
34	222.0	9862.	56.4	.254	151.3	.0235	-57.7			331.2	9.6	188.
35	214.0	10094.	58.6	.274	156.8	.0252	-57.4			335.3	10.4	194.
36	207.0	10304.	58.2	.281	155.7	.0267	-57.1			338.8	10.9	199.
37	200.0	10522.	60.3	.301	161.2	.0283	-57.4			341.8	11.4	203.
38	193.2	10740.	62.7	.325	168.0	.0299	-57.7			344.6	10.5	202.
39	186.6	10960.	70.2	.376	188.0	.0317	-57.7			348.1	11.0	192.
40	180.0	11187.	80.8	.449	216.7	.0337	-58.1			351.1	12.7	187.
41	173.2	11429.	85.2	.492	228.7	.0362	-58.1			355.0	10.9	181.
42	167.1	11655.	82.6	.494	221.6	.0386	-58.1			358.6	9.0	167.
43	161.0	11889.	80.6	.501	217.3	.0410	-58.9			361.1	10.4	163.
44	154.9	12131.	81.6	.527	220.8	.0434	-59.7			363.6	10.6	167.
45	149.0	12374.	79.8	.536	216.4	.0459	-60.1			367.1	7.1	177.
46	143.7	12599.	81.1	.564	220.3	.0481	-60.7			369.8	10.0	169.
47	138.3	12837.	88.1	.637	240.0	.0506	-61.3			372.8	11.3	171.
48	133.0	13080.	97.7	.735	266.8	.0534	-61.6			376.6	8.7	188.
49	128.2	13307.	105.8	.825	288.6	.0562	-61.6			380.5	9.7	179.

STATION: SOUTH POLE			LAUNCH DATE: 27 APR 89 328 Z					ECC SONDE: 4A4393				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	123.5	13539.	110.9	.898	303.3	.0594	-61.9			384.0	10.1	169.
51	119.0	13768.	120.8	1.015	330.7	.0626	-62.2			387.6	12.1	174.
52	114.3	14017.	132.8	1.162	363.9	.0665	-62.4			391.6	12.3	179.
53	110.0	14253.	141.0	1.282	388.3	.0705	-63.5			393.8	10.7	176.
54	106.0	14480.	146.0	1.378	403.9	.0747	-64.4			396.3	12.4	177.
55	101.6	14739.	136.1	1.340	377.3	.0794	-64.8			400.4	12.8	174.
56	97.8	14971.	156.0	1.595	433.4	.0836	-65.3			403.8	12.1	168.
57	94.0	15213.	157.4	1.675	436.8	.0884	-65.1			408.9	12.4	168.
58	90.2	15464.	163.5	1.813	453.8	.0936	-65.1			413.8	12.3	168.
59	86.5	15719.	168.8	1.951	468.9	.0990	-65.3			418.2	11.2	173.
60	83.0	15970.	170.2	2.050	474.4	.1045	-66.1			421.6	10.5	175.
61	79.7	16216.	168.2	2.110	469.6	.1099	-66.4			426.0	11.4	171.
62	76.3	16480.	165.4	2.168	462.9	.1156	-66.9			430.3	12.7	172.
63	73.2	16730.	159.6	2.180	448.9	.1210	-67.9			433.1	13.5	173.
64	70.3	16973.	151.5	2.156	426.4	.1259	-67.9			438.2	14.0	170.
65	67.4	17226.	149.8	2.222	421.5	.1309	-67.9			443.5	14.0	168.
66	64.9	17453.	148.2	2.283	416.7	.1353	-67.8			448.6	12.2	162.
67	62.0	17728.	145.6	2.348	408.9	.1406	-67.7			454.8	11.7	161.
68	59.2	18006.	142.2	2.402	401.2	.1458	-68.6			458.7	9.5	159.
69	56.7	18264.	137.0	2.417	387.6	.1506	-69.0			463.5	8.3	164.
70	54.2	18533.	132.2	2.438	375.8	.1553	-70.1			467.0	12.8	168.
71	51.8	18802.	126.7	2.447	361.4	.1599	-70.7			471.8	16.2	162.
72	48.7	19167.	124.4	2.554	356.1	.1661	-71.4			478.5	12.0	151.
73	47.5	19315.	119.8	2.522	343.1	.1685	-71.5			481.6	8.6	148.
74	45.7	19543.	119.2	2.607	341.6	.1721	-71.7			486.6	9.8	156.
75	43.7	19807.	114.5	2.620	328.4	.1762	-71.8			492.5	10.8	146.
76	41.7	20083.	117.4	2.815	336.7	.1804	-71.8			499.1	10.6	149.
77	39.7	20373.	119.6	3.013	343.1	.1850	-71.8			506.2	10.5	156.
78	38.0	20631.	121.8	3.205	349.1	.1891	-71.8			512.5	10.8	160.
79	36.4	20884.	122.7	3.371	352.6	.1932	-72.2			517.8	13.3	187.
80	34.7	21165.	123.0	3.544	354.8	.1978	-73.0			523.0	19.7	166.
81	33.1	21442.	117.1	3.538	338.1	.2023	-73.3			529.3	21.8	154.
82	31.5	21732.	101.3	3.215	293.2	.2067	-73.7			535.7	17.0	164.
83	30.0	22017.	72.4	2.415	209.3	.2103	-73.3			544.4	14.3	155.
84	28.7	22277.	64.0	2.231	184.8	.2128	-73.1			551.7	16.1	153.
85	27.5	22527.	60.1	2.185	173.4	.2149	-73.3			558.1	19.0	154.
86	26.1	22833.	58.6	2.245	169.0	.2174	-73.0			567.3	17.1	146.
87	24.9	23109.	57.6	2.312	166.3	.2195	-73.3			574.1	16.0	139.
88	23.7	23397.	55.9	2.358	161.9	.2217	-73.7			581.0	14.0	140.
89	22.8	23624.	54.9	2.410	159.1	.2234	-73.9			587.0	11.1	122.
90	22.0	23832.	54.6	2.480	157.8	.2249	-73.4			594.4	9.8	107.
91	21.0	24105.	54.7	2.603	157.7	.2269	-73.1			603.2	10.3	128.
92	20.2	24332.	50.5	2.502	145.8	.2286	-72.8			610.9	16.0	144.
93	19.4	24569.	49.4	2.548	142.5	.2301	-73.0			617.5	16.2	147.
94	18.5	24848.	49.0	2.646	141.0	.2320	-72.5			627.3	11.1	152.
95	17.7	25108.	44.4	2.507	128.0	.2336	-72.8			634.4	10.9	176.
96	16.9	25379.	41.6	2.459	120.0	.2352	-73.3			641.4	16.1	165.
97	16.1	25663.	38.8	2.407	112.0	.2368	-73.6			649.4	18.4	155.
98	15.3	25961.	36.2	2.368	104.6	.2383	-73.3			659.9	15.3	145.
99	14.6	26235.	35.2	2.411	101.5	.2396	-73.0			669.7	13.7	133.
100	13.8	26566.	34.9	2.530	100.5	.2412	-72.8			681.1	10.7	138.
101	13.3	26783.	33.1	2.491	94.9	.2421	-71.8			691.8	10.9	144.
102	12.7	27055.	32.4	2.550	92.7	.2433	-71.1			703.5	14.1	141.
103	12.0	27391.	31.5	2.621	89.6	.2448	-70.5			716.9	13.9	139.
104	11.5	27643.	30.3	2.637	86.9	.2458	-71.5			722.2	11.9	140.

STATION: SOUTH POLE			LAUNCH DATE: 27 APR 89				328 Z	ECC SONDE: 4A4393				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	11.0	27906.	29.2	2.655	83.8	.2469	-71.5			731.4	11.9	133.
106	10.2	28353.	28.2	2.762	80.4	.2486	-70.8			750.0	11.9	133.

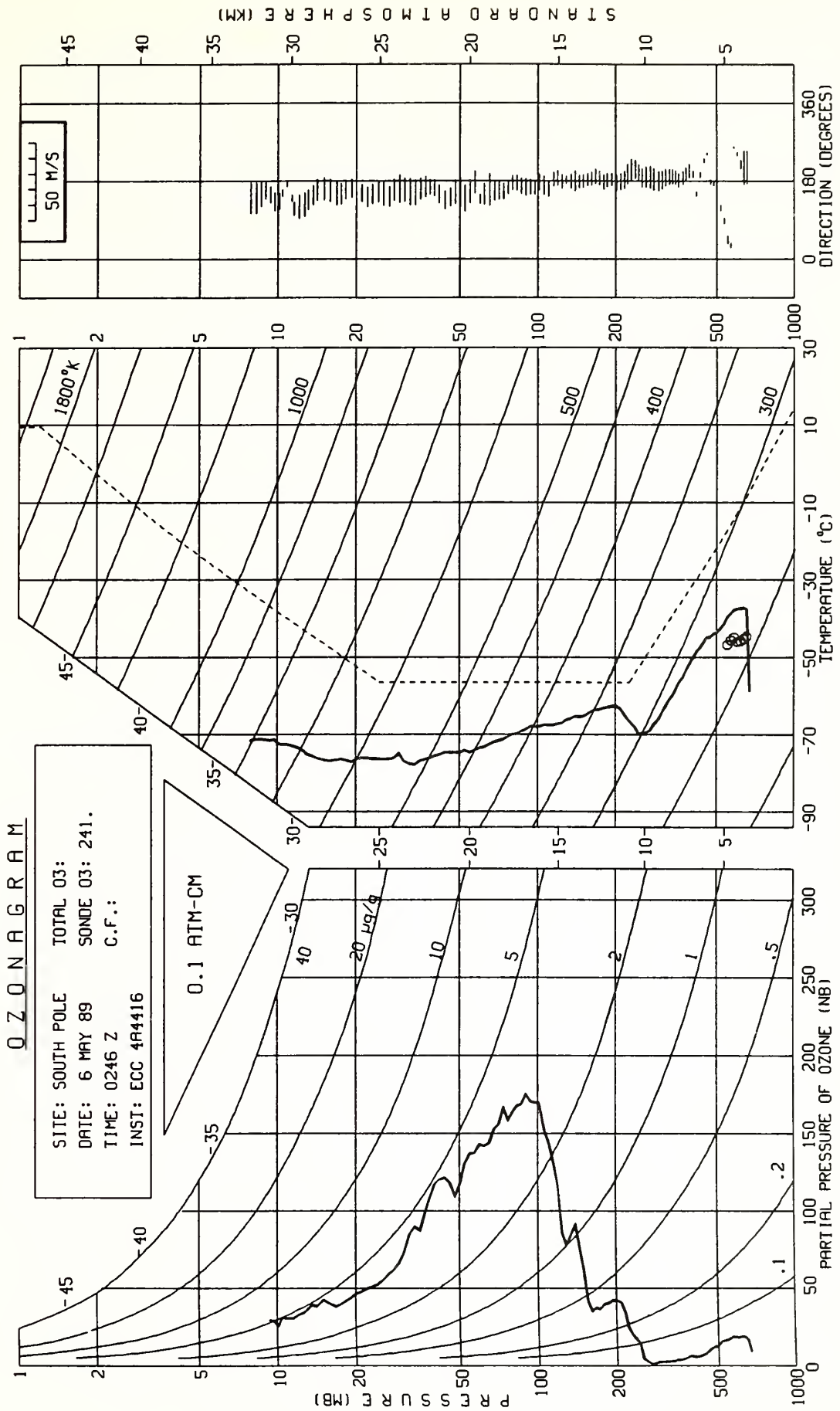
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
16.3	26.7	73.3	148.7	123.5	55.4	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX XP T CORR	COMMENTS
1110127048903	00270 99 .936	ECC TOTAL O3 FROM SONDE DATA 288
ISNNYYMMJJGG	PPPP P3TTDDDDFFPPPP	P3TTDDDDFFPPPP P3TTDDDDFFPPPP P3TTDDDDFFPPPP P3TTDDDDFF
1110227048903	665 18-68	500 16-48250 9 300 45-61230 10 200 60-57203 11
1110327048903	150 80-60175 8	100144-65172 13 70151-68170 14 50125-71156 14
1110427048903	30 72-73155 1420.0	50-73145 16 648 17-49257 32 632 17-47257 32
1110527048903	597 16-45243 13 350	14-60242 14 267 57-59217 10 173 85-58181 11
1110627048903	138 88-61171 11 110141-64176	11 106146-64177 12 102136-65174 13
1110727048903	98156-65168 12 83170-66175	11 44114-72146 11 35123-73166 20
1110827048903	32101-74164 1727.5	60-73154 1910.2 28-71133 12



STATION: SOUTH POLE LAUNCH DATE: 6 MAY 89 246 Z ECC SONDE: 4A4416
 SURFACE CONDITIONS: PRESSURE 670.3 MB, TEMPERATURE -58.9 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 78.3 ORD; TBOX 22.5 C AT 70.9 ORD;
 O3 ORD ZERO 29.0, BKGND 29.3, CAL 64.0; O3 BKGND 0.045 MICROAMP; FLOW RATE 26.0 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 241.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	670.3	2835.	9.2	.014	24.8	.0000	-58.9			240.2		
1	652.0	3017.	16.4	.025	40.3	.0002	-37.8	-44.9	48.3	266.0	21.6	212.
2	635.0	3200.	18.7	.029	45.8	.0006	-37.4	-45.5	43.4	268.4	21.6	212.
3	618.0	3387.	19.0	.031	46.5	.0010	-37.6	-46.0	41.7	270.3	5.6	219.
4	600.0	3591.	18.4	.031	45.2	.0014	-37.7	-46.2	41.3	272.5	2.5	243.
5	583.0	3789.	18.6	.032	45.6	.0018	-38.0	-45.0	49.0	274.3	1.1	258.
6	568.0	3968.	18.6	.033	45.8	.0022	-38.9	-45.8	48.5	275.4	2.8	31.
7	551.0	4176.	17.2	.031	42.7	.0026	-39.9	-47.0	47.5	276.5	4.6	44.
8	535.0	4377.	16.3	.030	40.7	.0030	-41.6			276.9	3.6	88.
9	518.0	4595.	15.9	.031	39.8	.0034	-42.7			278.1	3.7	117.
10	500.0	4833.	12.7	.025	31.9	.0038	-43.9			279.5	2.3	84.
11	487.0	5010.	12.6	.026	31.8	.0041	-44.1			281.3	2.2	173.
12	473.0	5206.	11.2	.024	28.3	.0044	-45.0			282.6	2.9	179.
13	459.0	5406.	9.2	.020	23.4	.0046	-45.1			284.9	1.0	243.
14	447.0	5583.	7.7	.017	19.7	.0048	-46.2			285.7	2.6	228.
15	432.0	5809.	6.7	.016	17.3	.0050	-47.8			286.5	3.6	195.
16	418.0	6026.	5.8	.014	15.0	.0052	-48.8			287.9	2.4	150.
17	406.0	6217.	5.8	.014	15.1	.0053	-50.3			288.4	4.1	196.
18	392.0	6445.	6.3	.016	16.4	.0055	-52.2			288.7	9.2	203.
19	380.0	6645.	5.3	.014	14.0	.0056	-53.6			289.5	9.1	195.
20	370.0	6816.	4.3	.012	11.5	.0057	-55.4			289.4	8.6	187.
21	356.0	7061.	3.8	.011	10.2	.0059	-57.0			290.4	8.5	182.
22	346.0	7241.	3.8	.011	10.4	.0060	-58.7			290.5	8.7	188.
23	337.0	7406.	2.9	.009	7.8	.0060	-60.1			290.7	9.1	190.
24	327.0	7593.	2.9	.009	7.9	.0061	-61.3			291.6	10.0	190.
25	317.0	7785.	2.4	.008	6.6	.0062	-62.9			291.9	10.8	188.
26	307.0	7982.	2.4	.008	6.7	.0062	-64.4			292.5	11.4	182.
27	297.0	8184.	2.4	.008	6.8	.0063	-66.2			292.7	12.5	180.
28	285.0	8433.	1.5	.005	4.2	.0064	-67.7			294.1	14.0	184.
29	276.0	8625.	1.0	.004	2.9	.0064	-69.0			294.9	13.8	189.
30	265.0	8868.	2.9	.011	8.3	.0064	-69.7			297.3	13.2	189.
31	256.0	9074.	4.4	.017	12.4	.0065	-70.0			299.9	11.8	188.
32	248.0	9263.	14.7	.059	41.7	.0067	-70.1			302.4	10.4	200.
33	240.0	9459.	17.3	.072	48.8	.0071	-68.3			307.9	11.8	207.
34	232.0	9662.	20.3	.088	57.0	.0076	-67.3			312.5	13.5	206.
35	224.0	9875.	25.0	.112	69.7	.0081	-66.1			317.5	12.8	196.
36	218.0	10040.	34.2	.157	95.0	.0087	-64.9			321.8	11.2	183.
37	210.0	10269.	41.0	.195	112.8	.0098	-63.5			327.4	10.2	179.
38	202.0	10507.	42.1	.208	115.7	.0110	-62.9			332.0	9.6	176.
39	193.5	10772.	42.2	.218	115.8	.0125	-62.9			336.1	7.7	184.
40	185.9	11019.	40.4	.217	111.1	.0138	-63.2			339.6	8.6	182.
41	179.5	11234.	39.8	.222	109.6	.0149	-63.3			342.8	9.6	178.
42	173.1	11457.	36.8	.213	101.3	.0160	-63.7			345.8	8.9	187.
43	166.8	11684.	37.4	.224	103.1	.0170	-63.8			349.2	9.6	190.
44	161.1	11897.	35.1	.218	97.1	.0180	-64.2			352.1	8.9	185.
45	155.3	12121.	41.5	.267	115.0	.0191	-64.9			354.5	7.7	183.
46	149.7	12345.	61.6	.411	171.1	.0204	-65.5			357.4	8.4	180.
47	144.2	12573.	77.1	.535	214.4	.0223	-65.6			361.0	8.6	179.
48	139.0	12796.	91.1	.655	253.3	.0246	-65.5			365.0	12.7	180.
49	133.8	13028.	84.3	.630	235.1	.0273	-66.1			367.9	9.4	179.

STATION: SOUTH POLE			LAUNCH DATE: 6 MAY 89 246 Z					ECC SONDE: 4A4416				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	128.4	13277.	78.1	.608	218.0	.0299	-66.4			371.7	5.3	182.
51	123.8	13498.	86.3	.697	242.0	.0322	-67.3			374.0	9.1	179.
52	119.2	13726.	115.7	.971	324.7	.0350	-67.4			377.8	9.5	187.
53	114.8	13953.	130.3	1.135	366.2	.0385	-67.7			381.4	9.3	184.
54	110.2	14199.	143.2	1.299	402.3	.0428	-67.7			385.9	10.1	162.
55	105.9	14438.	151.7	1.432	426.2	.0472	-67.7			390.3	12.0	170.
56	101.3	14705.	169.8	1.676	478.0	.0527	-68.1			394.5	10.4	177.
57	97.3	14947.	169.9	1.746	478.3	.0580	-68.1			399.1	9.2	165.
58	93.7	15174.	170.5	1.820	480.0	.0631	-68.1			403.4	10.0	166.
59	90.0	15415.	175.3	1.948	495.5	.0685	-68.9			406.4	11.0	166.
60	86.5	15652.	168.8	1.951	478.1	.0739	-69.3			410.2	10.4	169.
61	83.1	15891.	167.7	2.018	476.5	.0791	-70.0			413.6	9.8	175.
62	80.0	16118.	163.7	2.046	465.4	.0841	-70.1			417.8	9.3	175.
63	76.7	16368.	158.5	2.066	452.2	.0895	-70.8			421.4	8.3	165.
64	73.7	16604.	166.4	2.258	476.2	.0945	-71.4			425.1	10.2	156.
65	70.8	16841.	156.0	2.203	447.4	.0996	-71.8			429.0	12.1	159.
66	67.8	17096.	152.6	2.251	438.2	.1049	-72.1			433.8	12.6	158.
67	64.9	17353.	143.6	2.213	413.7	.1101	-72.8			437.6	21.1	160.
68	62.1	17611.	142.0	2.287	410.5	.1150	-73.4			441.9	13.4	150.
69	59.8	17832.	143.0	2.391	414.0	.1192	-73.7			446.0	5.7	138.
70	57.1	18101.	137.2	2.403	398.4	.1243	-74.3			450.6	14.4	177.
71	54.6	18362.	137.1	2.511	399.0	.1291	-74.8			455.3	15.1	156.
72	52.3	18612.	130.6	2.497	379.3	.1337	-74.3			462.0	17.3	140.
73	50.2	18851.	117.6	2.343	342.3	.1378	-74.8			466.4	18.1	154.
74	48.0	19111.	109.6	2.283	319.0	.1419	-74.8			472.4	15.5	154.
75	45.9	19371.	118.1	2.573	343.8	.1458	-74.8			478.5	11.1	142.
76	43.8	19643.	121.3	2.769	353.1	.1502	-74.8			484.9	11.4	136.
77	41.5	19956.	120.1	2.894	351.0	.1553	-75.5			490.6	11.7	150.
78	40.0	20169.	117.0	2.925	342.5	.1587	-75.8			495.0	10.0	164.
79	38.4	20405.	108.6	2.828	318.5	.1624	-76.3			499.6	9.4	166.
80	36.8	20650.	99.0	2.690	291.0	.1659	-76.6			504.9	13.4	167.
81	35.2	20905.	87.4	2.483	257.1	.1693	-77.0			510.5	13.8	162.
82	33.7	21155.	89.9	2.668	265.8	.1723	-77.9			514.3	16.2	153.
83	32.1	21433.	85.2	2.654	251.8	.1757	-77.8			522.0	17.0	155.
84	30.5	21726.	72.9	2.390	214.6	.1790	-77.1			531.4	15.3	160.
85	29.2	21978.	66.4	2.274	193.6	.1814	-75.1			543.7	18.0	162.
86	27.9	22241.	61.9	2.219	181.7	.1837	-76.3			547.3	13.9	160.
87	26.7	22495.	59.5	2.228	174.5	.1858	-76.5			553.8	12.5	144.
88	25.4	22782.	55.4	2.181	162.9	.1881	-76.6			561.3	15.7	151.
89	24.2	23061.	52.8	2.182	154.9	.1902	-76.5			569.6	14.0	156.
90	23.0	23354.	51.2	2.226	150.2	.1923	-76.5			577.9	12.6	149.
91	22.0	23610.	50.0	2.273	146.5	.1940	-76.3			585.8	13.2	143.
92	20.9	23906.	47.8	2.287	140.1	.1960	-76.3			594.4	10.8	152.
93	20.0	24159.	46.6	2.330	136.9	.1977	-76.6			601.0	11.3	169.
94	19.2	24394.	44.4	2.313	130.9	.1991	-77.3			606.0	12.2	163.
95	18.2	24701.	41.8	2.297	122.8	.2010	-76.8			616.9	10.5	158.
96	17.5	24927.	39.9	2.280	117.2	.2022	-76.6			624.3	13.3	150.
97	16.8	25162.	38.3	2.280	112.8	.2035	-76.8			631.1	15.5	152.
98	15.8	25515.	40.5	2.563	119.3	.2054	-77.0			641.8	14.5	159.
99	15.0	25813.	42.6	2.840	125.3	.2070	-76.8			651.9	14.6	162.
100	14.1	26170.	38.3	2.716	112.4	.2091	-76.3			665.1	13.3	159.
101	13.6	26378.	39.4	2.897	115.4	.2102	-75.8			673.7	12.4	147.
102	13.0	26639.	36.1	2.777	105.5	.2115	-75.4			684.0	13.0	136.
103	12.6	26820.	34.4	2.730	99.9	.2124	-74.6			692.8	15.2	125.
104	12.0	27105.	32.9	2.742	95.4	.2137	-73.7			705.7	15.2	120.

STATION: SOUTH POLE			LAUNCH DATE: 6 MAY 89			246 Z		ECC SONDE: 4A4416				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	11.5	27354.	30.8	2.678	88.9	.2148	-73.3			716.0	8.8	116.
106	11.3	27456.	30.8	2.726	88.8	.2152	-73.1			720.1	4.5	141.
107	10.8	27722.	30.8	2.852	88.8	.2163	-72.8			730.5	4.1	174.
108	10.4	27943.	31.1	2.990	89.7	.2172	-72.8			738.4	4.6	152.
109	10.1	28115.	25.8	2.554	74.3	.2179	-72.7			745.2	10.4	134.
110	9.7	28359.	29.3	3.024	83.9	.2187	-71.5			758.4	11.8	132.
111	9.3	28595.	29.4	3.158	84.4	.2197	-71.7			766.6	10.6	148.
112	8.9	28841.					-71.5			776.3	10.6	157.
113	8.6	29091.					-71.4			786.3	15.7	149.
114	8.2	29352.					-71.5			795.7	19.7	140.
115	7.8	29640.					-71.7			806.3	19.7	140.

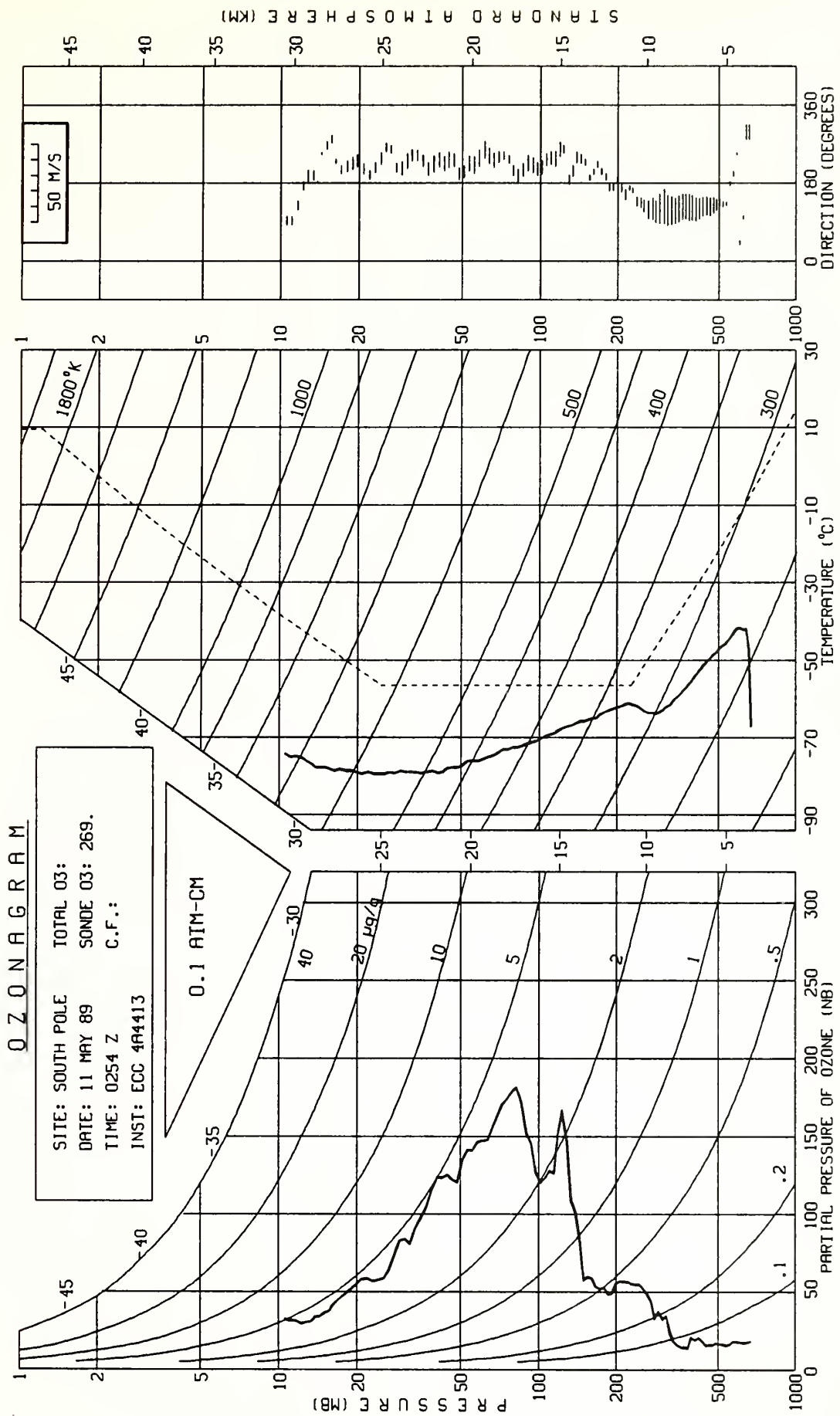
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
16.6	5.1	45.6	151.1	115.4	51.7	25.4	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110106058903			99		ECC TOTAL O3 FROM SONDE DATA 241
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPP	P3TTTDDDDFFFP	PPP P3TTTDDDDFFFP
1110206058903	670	9-59		500 13-44 84 2 300 2-66181 12 200 42-63178 9	
1110306058903	150	61-65180 8 100170-68173 10 70155-72159 12 50117-75154 18			
1110406058903	30	70-76161 1620.0 47-77169 1110.0 27-72134 11 652 16-38212 22			
1110506058903	583	19-38258 1 418 6-49150 2 256 4-70188 12 248 15-70200 10			
1110606058903	161	35-64185 9 155 42-65183 8 139 91-66180 13 128 78-66182 5			
1110706058903	124	86-67179 9 119116-67187 10 90175-69166 11 77159-71165 8			
1110806058903	74166-71156 10 65144-73160 21 55137-75156 15 48110-75154 16				
1110906058903	42120-76150 12 35 87-77162 14 34 90-78153 1615.0 43-77162 15				
1111006058903	9.3 29-72148 11 8.9 -72157 11 7.8 -72140 20				



STATION: SOUTH POLE LAUNCH DATE: 11 MAY 89 254 Z ECC SONDE: 4A4413
 SURFACE CONDITIONS: PRESSURE 671.9 MB, TEMPERATURE -67.3 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 78.3 ORD; TBOX 22.5 C AT 70.9 ORD;
 O3 ORD ZERO 26.4, BKGND 26.9, CAL 61.0; O3 BKGND 0.076 MICROAMP; FLOW RATE 26.4 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 269.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	671.9	2835.	18.3	.027	51.3	.0000	-67.3			230.7		
1	655.0	2996.	17.8	.027	45.5	.0004	-47.3			254.9	10.1	298.
2	640.0	3151.	17.4	.027	43.4	.0007	-42.1			262.4	10.1	298.
3	621.0	3355.	17.4	.028	43.5	.0011	-42.4			264.5	2.0	101.
4	603.0	3554.	17.8	.030	44.4	.0015	-41.9			267.2	2.4	42.
5	587.0	3736.	17.9	.030	44.6	.0019	-42.1			269.0	1.7	248.
6	570.0	3934.	17.9	.031	45.1	.0023	-43.3			269.9	3.0	201.
7	551.0	4162.	16.1	.029	40.7	.0027	-44.8			270.8	2.8	179.
8	535.0	4359.	15.7	.029	39.9	.0031	-45.8			271.8	2.4	132.
9	519.0	4560.	16.5	.032	42.1	.0035	-46.5			273.4	3.9	132.
10	504.0	4755.	16.6	.033	42.5	.0039	-47.2			274.8	5.8	134.
11	490.0	4941.	17.0	.035	43.6	.0042	-48.2			275.8	7.3	131.
12	476.0	5132.	16.1	.034	41.4	.0046	-48.8			277.4	10.1	129.
13	461.0	5341.	16.1	.035	41.7	.0050	-49.9			278.5	11.4	125.
14	447.0	5543.	15.7	.035	40.7	.0054	-50.8			279.8	11.6	127.
15	432.0	5764.	18.8	.044	49.2	.0058	-51.9			281.2	12.3	125.
16	419.0	5962.	20.6	.049	54.1	.0063	-53.0			282.2	13.3	121.
17	405.0	6180.	18.9	.047	49.8	.0068	-54.3			283.3	15.2	119.
18	392.0	6389.	20.7	.053	54.9	.0073	-55.6			284.3	16.3	122.
19	381.0	6570.	13.9	.036	37.0	.0077	-56.5			285.4	16.7	124.
20	370.0	6755.	14.4	.039	38.5	.0081	-57.6			286.4	16.2	125.
21	359.0	6946.	14.4	.040	38.7	.0084	-58.5			287.6	16.3	125.
22	348.0	7141.	15.7	.045	42.5	.0088	-59.5			288.9	17.1	120.
23	336.0	7360.	17.9	.053	48.7	.0092	-60.3			290.6	16.5	116.
24	326.0	7548.	23.2	.071	63.3	.0097	-61.6			291.5	17.8	116.
25	315.0	7760.	34.4	.109	94.2	.0104	-62.2			293.5	19.9	117.
26	305.0	7959.	32.6	.107	89.4	.0112	-62.9			295.2	22.1	126.
27	293.0	8206.	37.2	.127	102.4	.0123	-63.7			297.5	19.2	120.
28	284.0	8397.	32.9	.116	90.8	.0131	-64.1			299.6	14.3	114.
29	275.0	8594.	44.0	.160	121.3	.0140	-63.8			302.8	13.9	120.
30	265.0	8822.	48.9	.185	134.8	.0153	-63.8			306.0	11.6	119.
31	255.0	9058.	52.5	.206	144.3	.0169	-63.2			310.3	8.1	127.
32	247.0	9254.	54.9	.222	150.4	.0182	-62.5			314.0	6.5	135.
33	239.0	9458.	54.9	.230	150.0	.0196	-61.9			317.9	6.3	138.
34	230.0	9695.	55.3	.240	151.1	.0212	-61.7			321.8	3.3	163.
35	223.0	9887.	56.4	.253	153.6	.0226	-61.3			325.2	3.2	169.
36	215.0	10113.	56.8	.264	155.1	.0242	-61.7			328.1	6.3	153.
37	207.0	10348.	56.9	.275	155.6	.0259	-62.2			330.9	5.3	169.
38	199.0	10591.	55.3	.278	151.5	.0276	-62.4			334.2	4.1	187.
39	192.5	10796.	49.2	.256	135.0	.0290	-62.8			336.8	4.5	171.
40	186.0	11007.	49.0	.263	134.6	.0304	-63.2			339.6	4.2	169.
41	179.8	11216.	52.8	.294	145.3	.0317	-63.5			342.2	4.1	195.
42	173.2	11445.	52.2	.301	144.2	.0332	-64.1			345.1	4.1	207.
43	167.1	11664.	53.4	.320	148.1	.0347	-65.1			346.9	4.1	223.
44	161.0	11891.	58.8	.365	163.1	.0362	-65.1			350.7	3.7	206.
45	154.9	12126.	59.7	.385	165.9	.0380	-65.5			353.9	3.0	193.
46	149.4	12346.	57.8	.387	161.0	.0397	-66.0			356.7	3.7	228.
47	143.9	12573.	84.6	.588	235.7	.0416	-66.0			360.5	5.9	237.
48	138.7	12796.	101.5	.732	283.5	.0442	-66.4			363.6	6.9	239.
49	133.4	13032.	109.0	.817	305.4	.0473	-67.0			366.5	7.3	208.

STATION: SOUTH POLE				LAUNCH DATE: 11 MAY 89				254 Z	ECC SONDE: 4A4413				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	128.6	13253.	146.8	1.142	411.8	.0507	-67.3			369.9	6.0	188.	
51	123.0	13521.	165.4	1.345	464.8	.0560	-67.7			373.9	5.7	259.	
52	118.8	13730.	153.1	1.289	431.6	.0603	-68.3			376.4	9.5	258.	
53	114.3	13961.	126.3	1.105	357.3	.0648	-69.0			379.4	9.6	235.	
54	110.0	14190.	127.8	1.162	362.3	.0685	-69.4			382.8	8.5	238.	
55	105.7	14428.	123.1	1.165	349.5	.0725	-69.8			386.4	8.0	234.	
56	101.6	14663.	120.5	1.186	343.2	.0763	-70.4			389.7	8.6	217.	
57	97.5	14908.	126.9	1.302	362.6	.0803	-71.1			392.9	8.5	212.	
58	93.5	15155.	145.4	1.555	416.0	.0846	-71.4			397.1	9.9	221.	
59	89.5	15414.	152.2	1.701	436.5	.0896	-71.8			401.3	10.0	226.	
60	85.6	15676.	171.5	2.004	493.2	.0950	-72.4			405.2	8.7	211.	
61	82.0	15928.	181.3	2.211	522.7	.1009	-72.8			409.3	8.1	198.	
62	78.6	16177.	178.1	2.266	513.2	.1068	-72.8			414.3	6.1	209.	
63	75.5	16413.	174.1	2.306	503.0	.1124	-73.3			418.2	5.0	235.	
64	72.4	16658.	170.3	2.352	492.0	.1181	-73.3			423.2	4.8	243.	
65	69.3	16914.	162.8	2.349	472.4	.1239	-74.2			426.6	7.2	240.	
66	66.3	17171.	155.3	2.342	452.1	.1295	-74.8			430.8	9.6	233.	
67	63.7	17403.	147.7	2.319	430.9	.1343	-75.2			434.7	9.9	243.	
68	61.0	17654.	147.2	2.413	430.6	.1393	-75.8			438.7	10.9	256.	
69	58.3	17915.	146.3	2.509	429.2	.1445	-76.3			443.4	10.6	238.	
70	55.7	18178.	141.0	2.531	413.6	.1497	-76.3			449.2	10.9	222.	
71	53.3	18432.	141.1	2.647	414.0	.1545	-76.3			454.9	9.7	224.	
72	51.0	18686.	134.7	2.641	397.1	.1593	-77.3			458.4	8.1	206.	
73	48.7	18950.	120.3	2.470	355.8	.1640	-77.9			463.0	7.8	201.	
74	46.6	19203.	122.0	2.618	360.7	.1682	-77.9			468.8	8.5	233.	
75	44.5	19466.	125.4	2.818	371.3	.1726	-78.1			474.7	10.5	234.	
76	42.5	19728.	123.4	2.904	367.1	.1771	-79.1			478.5	9.0	224.	
77	40.7	19974.	123.5	3.034	368.0	.1813	-79.4			483.6	9.5	234.	
78	38.8	20246.	115.1	2.966	342.0	.1858	-78.9			491.5	11.2	224.	
79	37.0	20516.	104.7	2.830	311.4	.1900	-79.1			497.8	8.5	212.	
80	35.2	20799.	97.5	2.770	290.5	.1940	-79.4			504.1	7.4	231.	
81	33.5	21080.	90.6	2.704	269.6	.1978	-79.3			511.7	7.0	244.	
82	32.0	21340.	81.0	2.531	240.9	.2010	-79.1			518.9	7.4	244.	
83	30.7	21576.	84.1	2.739	250.1	.2036	-79.1			525.1	9.6	231.	
84	29.2	21861.	83.2	2.849	247.2	.2069	-78.9			533.1	8.6	214.	
85	27.8	22140.	73.3	2.637	218.5	.2100	-79.4			539.2	5.8	216.	
86	26.5	22412.	63.7	2.404	189.8	.2127	-79.3			547.1	4.5	258.	
87	25.4	22652.	58.8	2.315	175.3	.2148	-79.6			552.8	6.0	263.	
88	24.2	22927.	57.9	2.393	172.8	.2170	-79.6			560.5	7.6	237.	
89	23.0	23215.	57.0	2.478	170.0	.2193	-79.6			568.7	6.4	216.	
90	21.9	23493.	58.7	2.680	174.6	.2215	-79.1			578.3	5.4	199.	
91	20.8	23786.	58.2	2.798	173.5	.2239	-79.6			585.3	6.5	213.	
92	19.6	24123.	54.1	2.760	161.0	.2265	-79.1			596.9	7.9	231.	
93	18.8	24360.	51.6	2.745	153.1	.2283	-78.8			605.1	7.8	226.	
94	18.0	24608.	48.6	2.700	144.3	.2300	-78.8			612.6	7.3	219.	
95	17.0	24934.	45.6	2.682	135.2	.2321	-78.4			623.8	5.3	211.	
96	16.2	25208.	41.9	2.586	124.4	.2338	-78.8			631.4	2.8	230.	
97	15.6	25424.	37.8	2.423	112.1	.2350	-78.3			639.9	4.9	281.	
98	15.0	25648.	36.6	2.440	108.4	.2362	-77.9			648.2	4.8	267.	
99	14.3	25921.	34.1	2.385	100.8	.2375	-77.9			657.1	1.5	248.	
100	13.8	26124.	34.0	2.464	100.7	.2385	-77.9			663.8	1.2	183.	
101	13.3	26336.	31.0	2.331	91.3	.2394	-77.1			673.6	6.2	198.	
102	12.7	26602.	30.3	2.386	88.9	.2405	-76.3			685.3	7.2	197.	
103	12.2	26834.	29.6	2.426	86.5	.2415	-75.5			696.0	5.7	174.	
104	11.6	27126.	31.5	2.716	91.9	.2427	-75.1			707.7	6.1	128.	

STATION: SOUTH POLE			LAUNCH DATE: 11 MAY 89				254 Z	ECC SONDE: 4A4413				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	11.0	27434.	31.6	2.873	92.3	.2440	-75.2			718.0	5.5	92.
106	10.5	27704.	32.3	3.076	93.8	.2452	-74.5			730.4	5.5	92.

UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
17.1	25.1	66.5	150.7	120.5	59.3	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS							
1110111058903				99	ECC TOTAL O3 FROM SONDE DATA 269							
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF		
1110211058903	672	18-67		500	17-47133	6	300	34-63124	21	200	56-62185	4
1110311058903	150	58-66224	4	100	123-71215	9	70	165-74241	7	50	129-78204	8
1110411058903	30	84-79223	920.0	55-79225	7	655	18-47298	10	640	17-42298	10	
1110511058903	587	18-42248	2	359	14-59125	16	284	33-64114	14	275	44-64120	14
1110611058903	247	55-63135	7	186	49-63169	4	139	102-66239	7	133	109-67208	7
1110711058903	129	147-67188	6	123	165-68259	6	119	153-68258	10	114	126-69235	10
1110811058903	82	181-73198	8	64	148-75243	10	53	141-76224	10	49	120-78201	8
1110911058903	41	124-79234	10	32	81-79244	725.4	59-80263	613.3	31-77198	6		
1111011058903	10.5	32-75	92	6								

O Z O N A G R A M

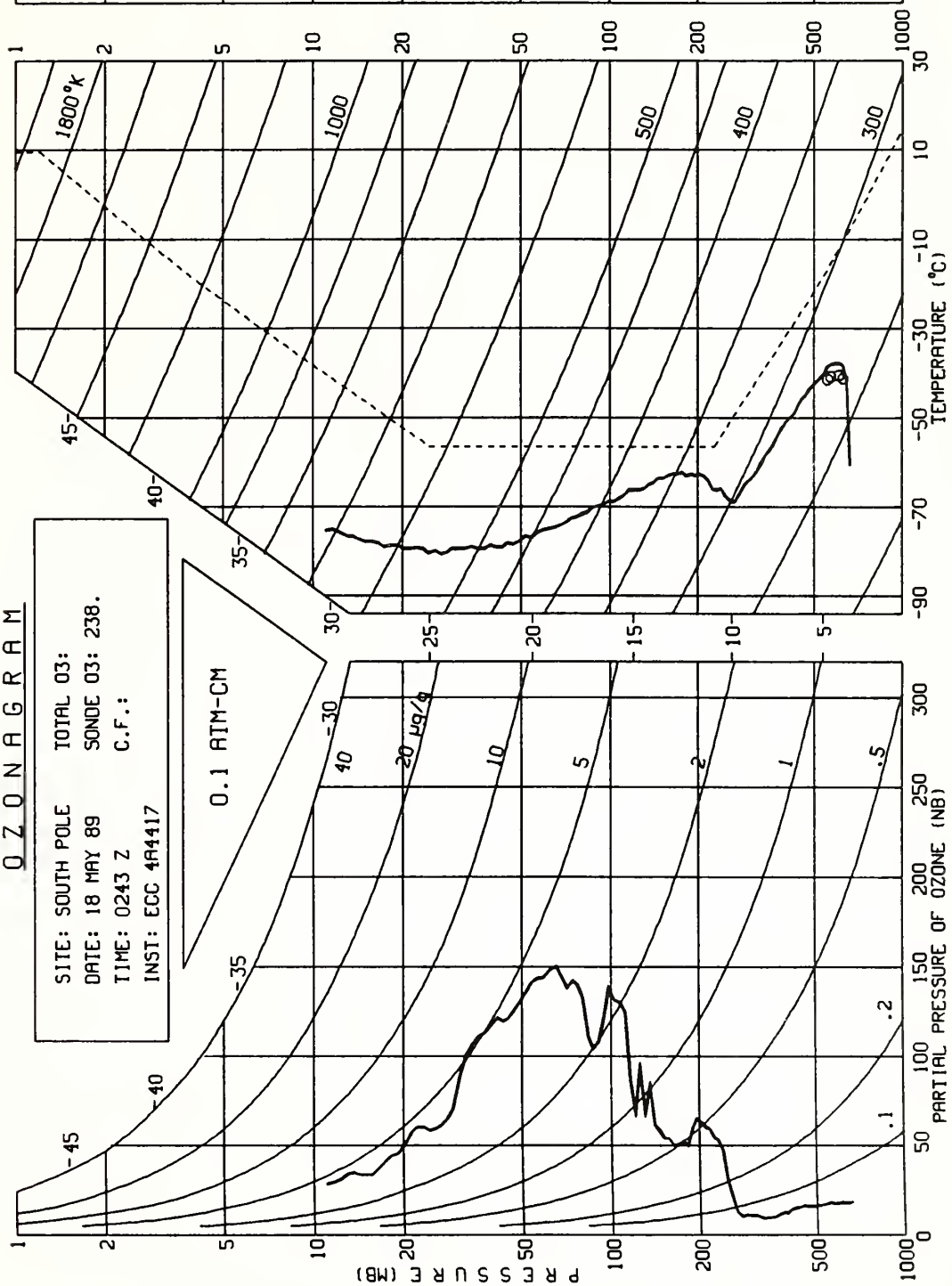
SITE: SOUTH POLE
 DATE: 18 MAY 89
 TIME: 0243 Z
 INST: ECC 4R4417

TOTAL O3:

SONDE O3: 238.

C.F.:

0.1 ATM-CM



STATION: SOUTH POLE LAUNCH DATE: 18 MAY 89 243 Z ECC SONDE: 4A4417
 SURFACE CONDITIONS: PRESSURE 662.3 MB, TEMPERATURE -60.9 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 78.3 ORD; TBOX 25.0 C AT 71.5 ORD;
 O3 ORD ZERO 30.0, BKGND 30.9, CAL 65.7; O3 BKGND 0.132 MICROAMP; FLOW RATE 27.2 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 238.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	662.3	2835.	18.7	.028	50.8	.0000	-60.9			238.7		
1	646.0	2997.	17.9	.028	44.8	.0004	-42.2			261.6	45.6	234.
2	627.0	3200.	18.0	.029	44.3	.0008	-38.4	-41.4	75.1	268.3	45.6	234.
3	609.0	3401.	18.1	.030	44.4	.0012	-38.0	-40.7	77.6	270.9	27.3	226.
4	590.0	3619.	17.6	.030	43.2	.0016	-38.0			273.4	19.7	212.
5	571.0	3844.	17.6	.031	43.3	.0021	-38.2	-41.0	75.8	275.8	12.7	207.
6	557.0	4015.	18.1	.032	44.7	.0024	-38.6	-41.6	74.9	277.2	9.9	212.
7	541.0	4215.	17.3	.032	42.9	.0029	-40.4			277.4	10.7	220.
8	526.0	4406.	16.8	.032	41.9	.0032	-41.3			278.6	13.5	215.
9	510.0	4615.	16.4	.032	41.0	.0036	-42.2			279.9	15.2	211.
10	497.0	4790.	16.0	.032	40.0	.0040	-42.8			281.3	16.2	205.
11	482.0	4996.	16.0	.033	40.3	.0043	-43.9			282.5	15.9	200.
12	467.0	5208.	16.1	.034	40.7	.0047	-45.2			283.3	14.7	189.
13	452.0	5425.	16.5	.037	42.0	.0052	-46.2			284.8	15.3	177.
14	440.0	5604.	15.6	.035	39.9	.0055	-47.6			285.1	16.3	173.
15	427.0	5801.	15.2	.036	39.2	.0059	-49.4			285.4	18.1	175.
16	412.0	6035.	14.4	.035	37.2	.0063	-50.4			287.0	19.0	173.
17	400.0	6227.	12.4	.031	32.4	.0066	-51.3			288.2	18.8	176.
18	386.0	6458.	12.5	.032	32.7	.0069	-52.7			289.4	18.2	183.
19	374.0	6661.	11.6	.031	30.6	.0072	-54.5			289.6	16.6	188.
20	362.0	6869.	10.2	.028	27.2	.0075	-56.5			289.6	18.6	192.
21	352.0	7046.	9.8	.028	26.1	.0077	-57.6			290.5	22.3	192.
22	341.0	7246.	9.8	.029	26.3	.0080	-58.8			291.5	21.8	189.
23	330.0	7451.	9.3	.028	25.3	.0082	-60.5			292.0	20.5	182.
24	320.0	7642.	10.3	.032	28.1	.0085	-62.1			292.3	19.1	179.
25	310.0	7838.	10.8	.035	29.6	.0087	-63.4			293.1	18.3	176.
26	300.0	8039.	10.8	.036	29.7	.0090	-64.3			294.6	21.3	183.
27	289.0	8267.	11.2	.039	31.0	.0093	-65.3			296.3	22.2	189.
28	279.0	8480.	10.3	.037	28.9	.0096	-67.3			296.5	20.6	189.
29	269.0	8699.	12.6	.047	35.7	.0099	-69.0			297.1	36.2	200.
30	260.0	8903.	20.8	.080	58.9	.0103	-69.0			300.0	18.1	186.
31	250.0	9138.	30.6	.122	86.0	.0110	-67.9			304.9	7.8	99.
32	241.0	9359.	47.6	.198	132.6	.0120	-66.1			310.9	13.1	192.
33	233.0	9564.	53.0	.227	147.9	.0133	-66.4			313.5	12.3	202.
34	225.0	9776.	54.6	.243	152.4	.0148	-66.2			316.9	13.2	193.
35	217.0	9996.	59.2	.273	163.5	.0164	-64.2			323.4	14.7	177.
36	210.0	10197.	60.6	.289	166.7	.0179	-63.3			327.8	15.5	170.
37	203.0	10406.	63.0	.310	173.1	.0195	-62.9			331.6	12.6	159.
38	196.1	10619.	65.0	.331	178.8	.0212	-63.2			334.5	9.2	159.
39	189.6	10826.	60.2	.318	165.3	.0229	-62.9			338.1	7.8	169.
40	183.0	11044.	49.9	.273	137.2	.0245	-63.3			340.9	8.0	169.
41	176.6	11263.	52.5	.297	143.8	.0259	-62.5			345.6	9.4	161.
42	170.0	11498.	50.7	.298	139.1	.0275	-62.8			349.0	8.7	149.
43	163.8	11727.	50.2	.306	137.7	.0289	-62.8			352.7	7.5	150.
44	158.0	11949.	54.2	.343	149.1	.0304	-63.2			355.8	7.1	151.
45	152.1	12183.	54.2	.356	149.6	.0320	-63.8			358.6	6.9	156.
46	146.3	12421.	58.5	.400	161.4	.0336	-63.8			362.6	8.5	161.
47	141.0	12647.	61.9	.439	171.5	.0354	-64.7			364.9	9.6	166.
48	136.0	12867.	83.7	.615	232.3	.0373	-65.1			368.0	7.8	160.
49	130.8	13104.	68.1	.521	189.8	.0397	-66.1			370.2	6.8	151.

STATION: SOUTH POLE				LAUNCH DATE: 18 MAY 89				243 Z	ECC SONDE: 4A4417				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	125.7	13345.	93.6	.745	261.3	.0420	-66.4			374.0	8.4	157.	
51	121.0	13576.	68.5	.566	191.2	.0447	-66.4			378.1	11.1	156.	
52	116.3	13816.	86.8	.746	242.3	.0469	-66.4			382.4	12.2	152.	
53	111.6	14065.	124.9	1.119	351.0	.0500	-67.7			384.5	10.7	146.	
54	107.0	14318.	129.9	1.214	366.2	.0541	-68.3			387.9	10.6	144.	
55	102.7	14564.	131.5	1.280	372.0	.0583	-69.0			391.1	12.3	139.	
56	98.3	14825.	138.5	1.409	391.8	.0629	-69.0			396.1	9.5	130.	
57	94.6	15054.	121.1	1.280	343.6	.0669	-69.7			399.1	9.7	155.	
58	90.8	15299.	107.9	1.188	306.6	.0707	-70.0			403.2	11.1	169.	
59	87.0	15553.	104.0	1.195	296.2	.0743	-70.4			407.4	9.0	160.	
60	83.7	15782.	110.8	1.324	317.0	.0774	-71.4			409.9	10.2	150.	
61	80.2	16034.	132.6	1.653	380.3	.0813	-71.8			414.0	10.3	150.	
62	77.0	16274.	139.9	1.817	402.7	.0856	-72.5			417.4	9.5	150.	
63	74.0	16507.	142.3	1.923	410.0	.0900	-72.8			421.5	11.6	154.	
64	71.0	16749.	137.9	1.942	398.8	.0945	-73.6			425.0	15.0	153.	
65	68.0	17001.	144.0	2.118	418.1	.0992	-74.3			428.6	15.9	151.	
66	65.0	17264.	150.3	2.312	437.5	.1044	-74.8			433.2	15.9	153.	
67	62.0	17538.	148.2	2.390	432.0	.1099	-75.1			438.4	13.8	153.	
68	59.0	17826.	143.9	2.439	420.3	.1156	-75.5			443.6	13.0	149.	
69	56.7	18055.	143.6	2.533	420.6	.1200	-76.0			447.6	14.5	153.	
70	54.1	18326.	141.3	2.612	416.1	.1253	-77.1			451.1	11.7	155.	
71	51.8	18575.	136.2	2.629	400.5	.1300	-76.8			457.5	12.0	150.	
72	49.5	18836.	130.7	2.640	386.5	.1348	-77.9			460.8	15.7	153.	
73	47.0	19132.	125.3	2.666	371.9	.1401	-78.6			466.1	14.4	156.	
74	45.1	19367.	121.0	2.683	358.5	.1441	-78.3			472.4	12.8	154.	
75	43.3	19599.	119.4	2.758	355.7	.1480	-79.3			475.5	14.9	147.	
76	41.3	19868.	121.5	2.942	361.7	.1524	-79.3			482.0	15.1	147.	
77	39.6	20107.	117.5	2.967	349.0	.1563	-78.8			489.1	15.7	147.	
78	37.6	20401.	113.2	3.011	337.6	.1610	-79.6			494.2	17.2	147.	
79	35.7	20695.	111.0	3.109	331.2	.1655	-79.6			501.6	17.0	145.	
80	34.0	20972.	106.5	3.132	316.8	.1697	-79.1			510.0	15.2	150.	
81	32.4	21246.	100.5	3.102	299.9	.1737	-79.6			515.7	14.2	158.	
82	30.8	21533.	88.4	2.870	263.7	.1776	-79.6			523.2	16.1	150.	
83	29.2	21835.	70.4	2.411	210.0	.1811	-79.6			531.2	16.3	142.	
84	28.0	22073.	65.2	2.329	195.3	.1833	-80.5			535.2	14.2	143.	
85	26.8	22320.	61.6	2.299	184.8	.1855	-80.8			541.0	15.2	164.	
86	25.6	22578.	59.8	2.336	178.8	.1877	-80.1			550.1	15.5	167.	
87	24.4	22849.	58.5	2.398	175.3	.1900	-80.6			556.2	17.0	155.	
88	23.3	23110.	60.3	2.588	180.0	.1921	-79.6			566.6	17.1	154.	
89	22.2	23384.	60.5	2.725	180.4	.1944	-79.4			575.0	16.9	157.	
90	21.2	23646.	57.5	2.712	171.6	.1965	-79.6			582.1	17.5	157.	
91	20.1	23948.	50.3	2.502	150.2	.1988	-79.6			591.1	14.8	152.	
92	19.2	24208.	45.8	2.385	136.3	.2006	-78.9			600.9	15.4	148.	
93	18.2	24512.	44.6	2.451	132.5	.2025	-78.9			610.2	20.0	152.	
94	17.2	24834.	40.8	2.372	121.3	.2045	-79.1			619.6	20.1	157.	
95	16.6	25036.	37.8	2.277	112.0	.2056	-78.3			628.6	16.4	159.	
96	15.7	25354.	33.9	2.159	100.3	.2072	-77.9			639.8	16.3	151.	
97	14.9	25654.	33.9	2.275	100.2	.2086	-77.9			649.4	16.8	147.	
98	14.1	25970.	33.9	2.404	100.0	.2101	-77.4			661.4	19.8	140.	
99	13.6	26177.	35.1	2.581	103.2	.2110	-76.8			670.4	20.3	132.	
100	13.0	26436.	34.3	2.638	101.0	.2122	-76.8			679.1	19.0	132.	
101	12.3	26755.	31.4	2.553	92.0	.2137	-76.0			692.7	19.8	137.	
102	11.6	27094.	29.4	2.534	85.6	.2151	-75.2			707.2	16.8	151.	
103	11.0	27402.	28.5	2.591	83.2	.2163	-75.5			716.9	16.8	151.	

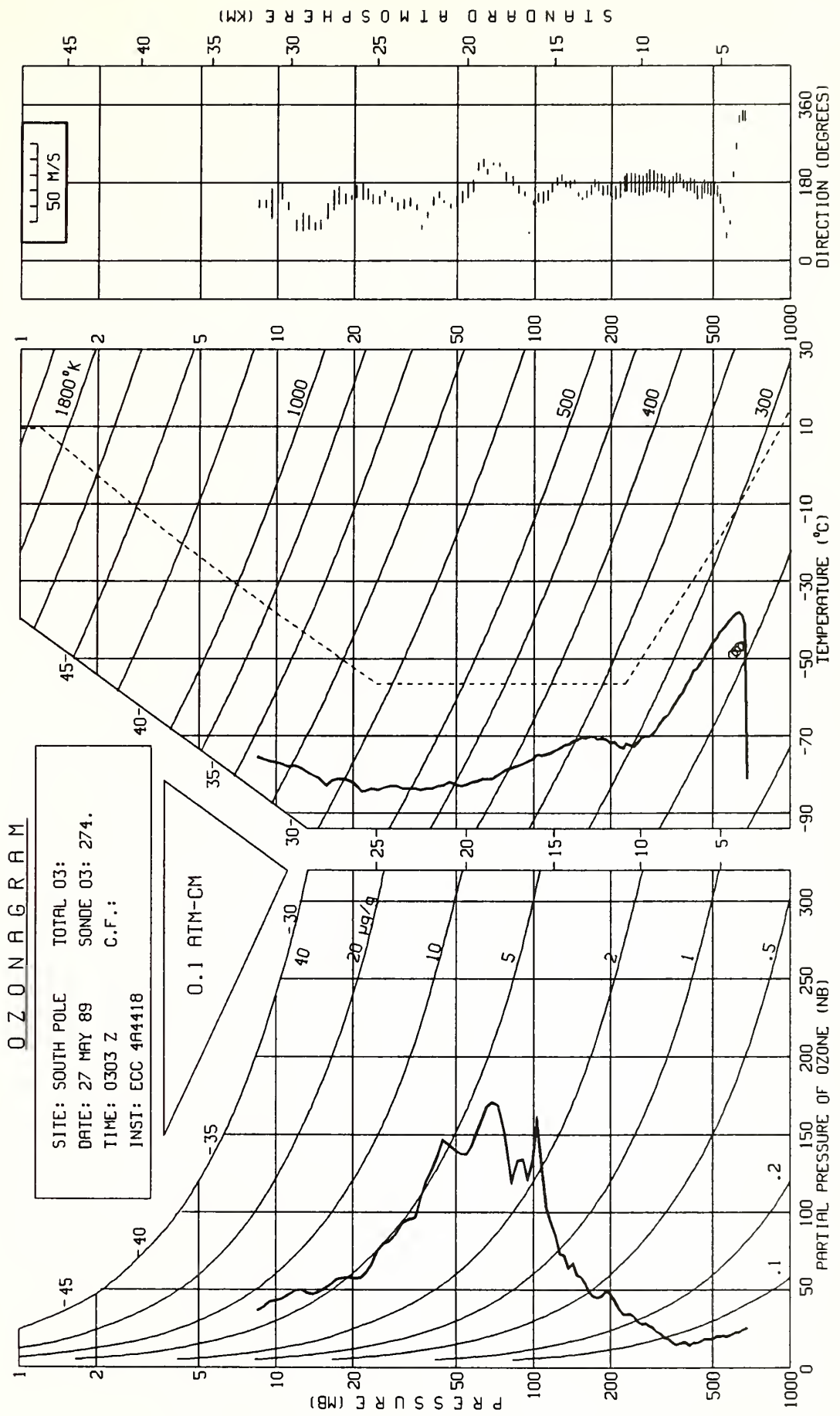
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
17.5	13.1	57.4	121.6	123.4	56.3	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110118058903			99		ECC TOTAL O3 FROM SONDE DATA 238
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110218058903	662	19-61		500	16-43206 16 300 11-64183 21 200 64-63159 11
1110318058903	150	56-64158	7	100136-69134	11 70140-74152 15 50132-78152 15
1110418058903	30	80-80146	1620.0	50-80152	15 646 18-42234 46 627 18-38234 46
1110518058903	557	18-39212	10	260	21-69186 18 241 48-66192 13 183 50-63169 8
1110618058903	141	62-65166	10	136	84-65160 8 131 68-66151 7 126 94-66157 8
1110718058903	121	69-66156	11	116	87-66152 12 112125-68146 11 98139-69130 10
1110818058903		91108-70169	11	87104-70160	9 77140-73150 10 65150-75153 16
1110918058903		34107-79150	1526.8	62-81164	1522.2 61-79157 1715.7 34-78151 16
1111018058903		11.0	29-76151	17	



STATION: SOUTH POLE LAUNCH DATE: 27 MAY 89 303 Z ECC SONDE: 4A4418
 SURFACE CONDITIONS: PRESSURE 679.1 MB, TEMPERATURE -81.3 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.9 ORD; TBOX 19.0 C AT 69.2 ORD;
 O3 ORD ZERO 30.3, BKGND 30.5, CAL 66.9; O3 BKGND 0.029 MICROAMP; FLOW RATE 28.1 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 274.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	679.1	2835.	25.6	.038	76.9	.0000	-81.3			214.2		
1	665.0	2965.	24.8	.037	61.9	.0004	-41.4			260.4	6.3	334.
2	650.0	3121.	24.3	.037	59.9	.0009	-39.0	-47.0	42.9	264.9	6.3	334.
3	632.0	3314.	22.8	.036	56.1	.0014	-38.2	-47.3	38.1	267.9	4.5	327.
4	615.0	3501.	22.8	.037	56.0	.0019	-38.6	-48.3	35.8	269.5	4.4	264.
5	598.0	3694.	21.8	.036	53.8	.0024	-39.2	-49.2	34.2	271.0	3.1	198.
6	580.0	3903.	20.5	.035	51.0	.0029	-40.4			272.0	2.1	88.
7	564.0	4093.	20.1	.036	50.0	.0033	-41.6			272.8	3.4	58.
8	548.0	4288.	20.6	.038	51.5	.0038	-42.5			273.9	3.9	118.
9	532.0	4487.	20.1	.038	50.4	.0043	-43.3			275.3	6.2	142.
10	518.0	4666.	20.0	.039	50.7	.0047	-45.0			275.3	7.0	160.
11	505.0	4836.	19.0	.038	48.1	.0051	-45.6			276.6	7.0	167.
12	490.0	5036.	18.4	.038	47.1	.0055	-47.3			276.9	7.2	163.
13	475.0	5241.	18.4	.039	47.4	.0060	-48.7			277.7	7.9	168.
14	462.0	5423.	18.3	.040	47.5	.0064	-50.2			278.0	8.4	171.
15	450.0	5595.	16.9	.038	43.9	.0067	-51.3			278.7	8.8	159.
16	435.0	5814.	15.8	.036	41.5	.0072	-52.8			279.5	8.8	157.
17	421.0	6025.	15.9	.038	41.7	.0076	-53.4			281.4	8.7	172.
18	408.0	6226.	14.4	.035	38.1	.0080	-55.6			281.1	8.3	176.
19	394.0	6447.	16.3	.041	43.5	.0084	-57.2			281.8	6.4	172.
20	383.0	6626.	16.3	.043	43.9	.0087	-59.0			281.7	5.4	177.
21	372.0	6808.	15.3	.041	41.4	.0091	-60.1			282.6	5.6	189.
22	360.0	7012.	14.8	.041	40.3	.0095	-61.6			283.3	6.7	190.
23	349.0	7204.	16.2	.046	44.6	.0098	-62.9			284.0	10.0	175.
24	337.0	7418.	18.2	.054	50.4	.0103	-64.7			284.5	11.8	166.
25	324.0	7658.	19.6	.060	54.5	.0109	-65.5			286.6	10.6	174.
26	314.0	7848.	21.9	.070	61.4	.0114	-66.9			287.2	11.0	180.
27	302.0	8083.	23.4	.077	66.0	.0121	-68.6			288.0	11.2	180.
28	293.0	8263.	25.7	.088	72.8	.0126	-69.6			289.1	12.8	185.
29	284.0	8449.	27.1	.095	77.1	.0133	-70.4			290.5	14.0	185.
30	275.0	8640.	28.4	.103	80.9	.0140	-70.4			293.2	12.1	179.
31	266.0	8838.	27.9	.105	79.6	.0147	-70.5			295.8	12.1	173.
32	257.0	9041.	29.3	.114	84.1	.0154	-71.8			296.8	13.4	174.
33	247.0	9275.	33.1	.134	95.4	.0164	-73.0			298.5	12.3	179.
34	239.0	9468.	34.5	.144	99.5	.0172	-72.7			301.8	12.3	180.
35	230.0	9694.	34.4	.150	98.9	.0183	-72.1			306.0	11.3	181.
36	225.0	9823.	34.4	.153	99.2	.0188	-73.3			306.1	10.0	177.
37	217.0	10035.	37.5	.173	108.2	.0198	-73.0			309.8	10.7	164.
38	207.0	10312.	43.9	.212	125.8	.0213	-71.8			315.8	8.9	157.
39	198.4	10563.	48.3	.243	138.7	.0228	-72.0			319.4	7.4	163.
40	191.7	10765.	49.3	.257	141.0	.0241	-71.1			323.9	6.5	163.
41	184.9	10979.	46.1	.249	131.6	.0254	-70.8			327.7	6.4	162.
42	178.0	11205.	44.8	.252	128.0	.0268	-71.1			330.9	6.2	172.
43	171.6	11422.	46.0	.268	131.1	.0281	-70.4			335.5	5.2	179.
44	165.6	11633.	48.4	.292	137.7	.0294	-70.4			338.9	6.3	163.
45	159.7	11848.	54.1	.339	154.5	.0308	-70.8			341.7	4.8	153.
46	153.7	12075.	58.4	.380	166.3	.0325	-70.5			346.0	1.5	143.
47	148.2	12291.	59.6	.402	170.5	.0342	-71.2			348.4	2.0	153.
48	142.7	12515.	67.2	.471	192.5	.0360	-71.5			351.7	3.1	182.
49	137.0	12755.	64.0	.467	184.2	.0381	-72.4			354.3	4.7	176.

STATION: SOUTH POLE			LAUNCH DATE: 27 MAY 89 303 Z					ECC SONDE: 4A4418				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	131.9	12978.	72.5	.550	208.8	.0400	-72.5			357.9	3.9	177.
51	126.9	13205.	73.0	.575	210.8	.0422	-73.3			360.5	3.8	192.
52	122.0	13435.	85.5	.701	247.7	.0446	-73.9			363.5	4.9	183.
53	117.0	13679.	94.0	.803	273.2	.0474	-74.5			366.8	5.0	167.
54	112.4	13912.	102.1	.908	297.4	.0504	-74.9			370.2	6.6	150.
55	107.9	14149.	127.3	1.180	371.3	.0539	-75.2			373.9	6.9	145.
56	103.2	14407.	158.7	1.538	462.6	.0586	-75.1			379.0	5.8	146.
57	99.0	14648.	132.9	1.342	389.6	.0636	-76.2			381.4	2.6	134.
58	94.9	14891.	121.2	1.277	356.4	.0678	-76.8			384.8	.6	64.
59	90.9	15139.	133.8	1.472	394.7	.0720	-77.4			388.3	2.8	154.
60	86.5	15423.	133.1	1.539	393.5	.0772	-77.9			392.9	4.8	165.
61	81.9	15735.	119.4	1.458	354.1	.0827	-78.4			398.1	6.2	184.
62	77.0	16086.	150.4	1.953	447.5	.0889	-79.1			403.7	5.6	195.
63	72.6	16419.	169.1	2.329	506.3	.0960	-80.3			408.1	2.3	222.
64	69.0	16706.	170.5	2.471	513.3	.1027	-81.3			411.8	1.0	223.
65	65.5	16998.	167.9	2.563	505.3	.1096	-81.3			417.9	3.3	205.
66	63.0	17217.	160.1	2.541	481.9	.1147	-81.3			422.6	4.6	226.
67	60.3	17463.	152.0	2.521	458.7	.1201	-81.9			426.7	4.8	216.
68	57.7	17710.	143.0	2.478	432.1	.1253	-82.1			431.7	8.2	173.
69	55.0	17977.	137.2	2.495	416.1	.1306	-82.8			436.0	9.0	160.
70	52.3	18258.	137.4	2.627	417.5	.1360	-83.2			441.4	7.4	147.
71	49.7	18542.	139.8	2.813	424.1	.1415	-82.8			448.8	6.6	136.
72	47.0	18854.	143.3	3.049	433.1	.1477	-82.1			457.8	2.6	125.
73	44.5	19159.	146.5	3.292	444.7	.1539	-83.0			462.7	1.0	137.
74	42.4	19428.	136.6	3.222	415.1	.1593	-83.2			468.7	4.1	152.
75	40.4	19696.	127.7	3.161	389.3	.1643	-83.8			473.8	5.3	137.
76	38.3	19993.	119.9	3.131	365.5	.1696	-83.8			481.0	3.6	105.
77	36.4	20274.	108.5	2.981	331.5	.1743	-84.1			487.1	2.2	77.
78	34.7	20540.	96.5	2.781	294.1	.1783	-83.8			494.8	3.3	123.
79	32.8	20852.	95.3	2.905	290.4	.1825	-83.8			502.8	5.0	135.
80	31.0	21165.	93.3	3.010	284.4	.1867	-83.8			511.0	6.0	130.
81	29.3	21478.	86.1	2.939	261.8	.1907	-83.2			520.9	5.1	125.
82	27.8	21771.	81.6	2.935	247.9	.1942	-83.2			528.7	3.1	141.
83	26.2	22100.	79.9	3.050	243.4	.1980	-83.6			536.7	3.6	155.
84	24.9	22382.	75.3	3.024	229.9	.2011	-84.1			542.9	4.4	140.
85	23.5	22703.	65.6	2.791	199.9	.2044	-83.8			553.1	5.5	142.
86	22.5	22944.	61.4	2.729	187.9	.2066	-84.3			558.3	7.1	154.
87	21.5	23195.	57.8	2.688	176.9	.2088	-84.5			565.0	10.4	159.
88	20.3	23514.	57.4	2.828	174.0	.2114	-82.6			580.2	8.0	160.
89	19.4	23768.	57.9	2.985	174.7	.2134	-81.9			590.0	2.9	146.
90	18.4	24065.	58.0	3.152	174.5	.2158	-81.3			600.7	6.4	143.
91	17.3	24411.	57.0	3.295	171.5	.2186	-81.3			611.4	11.1	150.
92	16.5	24677.	54.2	3.285	163.5	.2207	-81.7			618.5	12.2	140.
93	15.6	24990.	51.4	3.295	156.2	.2230	-83.0			624.3	9.5	114.
94	14.7	25323.	49.0	3.333	147.2	.2254	-81.2			641.1	5.6	83.
95	13.9	25638.	47.2	3.396	141.4	.2276	-80.5			653.8	5.1	79.
96	13.2	25930.	48.1	3.644	143.4	.2295	-79.6			666.5	9.0	88.
97	12.5	26240.	50.1	4.008	148.6	.2316	-78.6			680.5	11.2	89.
98	11.8	26569.	49.4	4.186	146.0	.2338	-77.9			694.2	6.8	81.
99	11.0	26970.	46.2	4.200	136.7	.2365	-78.1			707.6	4.6	126.
100	10.4	27291.	43.8	4.212	129.3	.2385	-77.4			721.5	10.1	160.
101	10.0	27516.	43.5	4.350	128.0	.2399	-77.1			730.8	15.0	151.
102	9.5	27835.	42.4	4.482	124.6	.2417	-76.8			743.7	19.3	131.
103	8.9	28161.	39.2	4.385	114.9	.2436	-76.3			757.6	4.8	131.
104	8.4	28500.	36.8	4.365	107.5	.2454	-75.7			772.9	4.8	131.

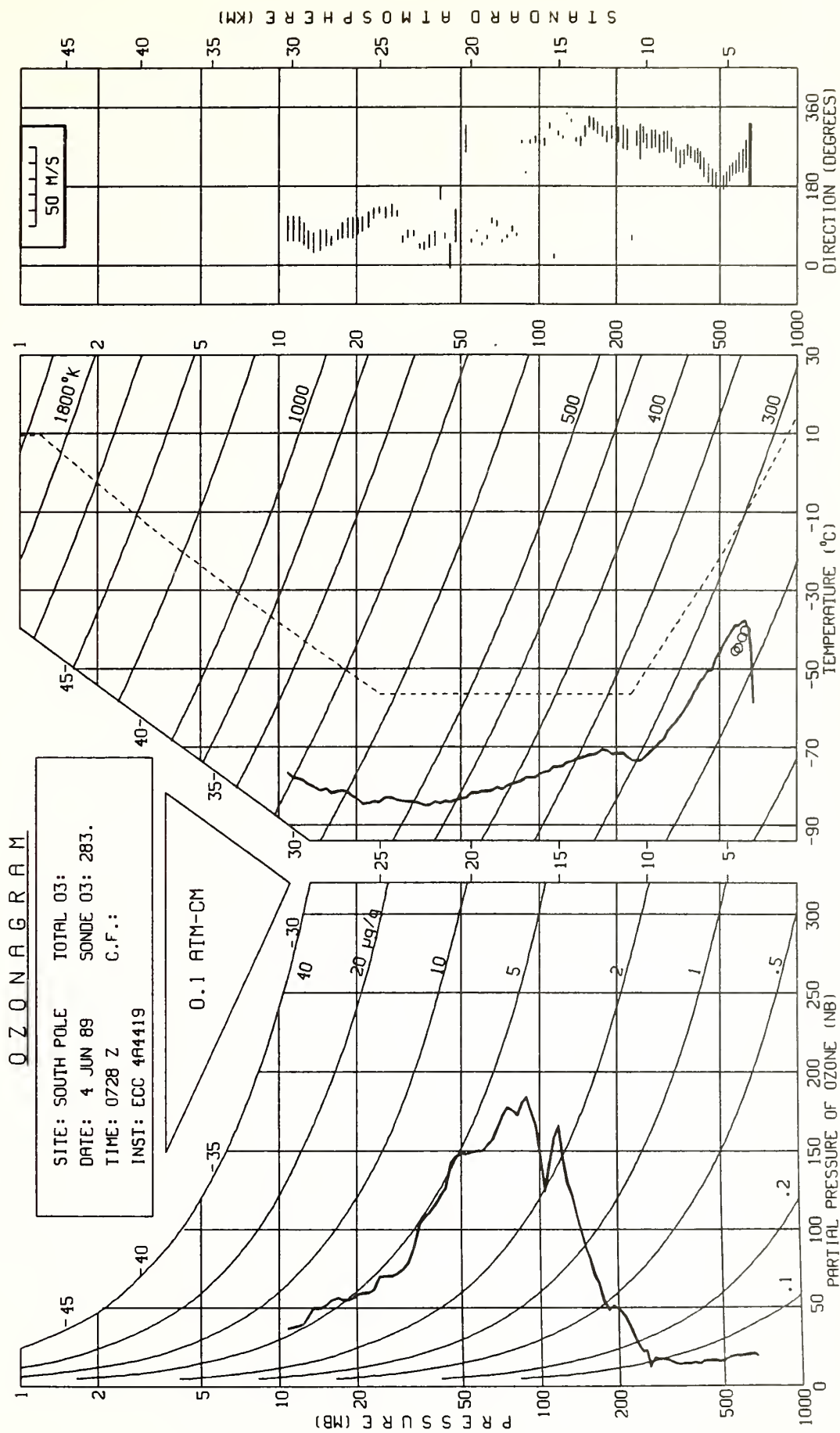
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
21.6	19.9	49.5	132.6	128.7	67.3	46.2	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX XP T CORR	COMMENTS
1110127058903	99	ECC TOTAL O3 FROM SONDE DATA 274
ISNNYYMMJJGG	PPPP P3TTDDDDFFPPPP	P3TTDDDDFFPPPP P3TTDDDDFFPPPP P3TTDDDDFF
1110227058903	679 26-81	500 19-46166 7 300 24-69181 12 200 47-72162 8
1110327058903	150 59-71150	2 100139-76137 3 70170-81223 1 50140-83137 7
1110427058903	30 89-83127	520.0 58-82155 610.0 44-77151 15 665 25-41334 6
1110527058903	650 24-39334	6 615 23-39264 4 360 15-62190 7 247 33-73179 12
1110627058903	172 46-70179	5 127 73-73192 4 112102-75150 7 103159-75146 6
1110727058903	95121-77 64	1 91134-77154 3 87133-78165 5 82119-78184 6
1110827058903	77150-79195	6 73169-80222 2 66168-81205 3 55137-83160 9
1110927058903	45147-83137	1 35 97-84123 321.5 58-85159 1015.6 51-83114 10
1111027058903	8.4 37-76131	5



STATION: SOUTH POLE LAUNCH DATE: 4 JUN 89 728 Z ECC SONDE: 4A4419
 SURFACE CONDITIONS: PRESSURE 675.6 MB, TEMPERATURE -58.9 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 78.3 ORD; TBOX 23.0 C AT 71.5 ORD;
 O3 ORD ZERO 31.3, BKGND 31.8, CAL 67.9; O3 BKGND 0.072 MICROAMP; FLOW RATE 26.5 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 283.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	675.6	2835.	18.8	.028	50.6	.0000	-58.9			239.7		
1	660.0	2987.	20.2	.031	51.0	.0004	-44.4			257.6	40.2	251.
2	646.0	3132.	20.6	.032	51.0	.0007	-40.0			264.1	40.2	251.
3	630.0	3304.	20.1	.032	49.4	.0011	-38.0	-40.5	79.0	268.3	17.9	253.
4	613.0	3492.	20.1	.033	49.3	.0015	-38.2	-42.2	67.3	270.3	14.6	238.
5	593.0	3720.	19.6	.033	48.4	.0020	-39.1	-44.9	55.2	271.8	11.8	234.
6	576.0	3919.	19.2	.033	47.4	.0025	-39.2	-45.7	50.9	273.9	8.1	224.
7	560.0	4112.	19.6	.035	48.6	.0029	-40.4			274.7	8.1	219.
8	545.0	4296.	19.0	.035	47.4	.0033	-41.6			275.5	9.8	209.
9	530.0	4485.	18.6	.035	46.6	.0037	-42.9			276.0	9.7	195.
10	515.0	4678.	17.6	.034	44.5	.0041	-44.3			276.6	9.0	188.
11	500.0	4875.	16.3	.033	41.4	.0045	-46.2			276.7	9.4	190.
12	483.0	5105.	15.8	.033	40.5	.0050	-47.5			277.8	10.5	193.
13	467.0	5326.	16.3	.035	42.3	.0054	-50.6			276.6	11.3	199.
14	450.0	5567.	16.3	.036	42.3	.0059	-50.7			279.4	12.0	209.
15	435.0	5787.	15.9	.037	41.5	.0063	-52.5			280.0	12.0	223.
16	420.0	6014.	15.9	.038	41.8	.0067	-53.5			281.4	11.5	240.
17	410.0	6168.	14.5	.035	38.5	.0070	-55.2			281.1	9.3	250.
18	400.0	6325.	14.5	.036	38.6	.0073	-56.2			281.9	7.8	248.
19	387.0	6535.	14.9	.039	40.1	.0077	-58.2			282.0	7.5	257.
20	376.0	6716.	14.4	.038	39.0	.0080	-59.5			282.6	7.3	262.
21	365.0	6901.	14.4	.039	39.2	.0083	-60.9			283.0	9.3	247.
22	352.0	7125.	14.4	.041	39.4	.0087	-62.4			284.0	10.9	242.
23	339.0	7357.	13.9	.041	38.4	.0092	-63.8			285.2	9.7	251.
24	326.0	7596.	14.8	.045	41.1	.0096	-65.1			286.6	9.2	275.
25	315.0	7805.	15.7	.050	43.8	.0100	-66.2			287.8	11.2	286.
26	305.0	7999.	17.0	.056	47.9	.0104	-68.2			287.7	13.1	281.
27	293.0	8240.	17.5	.060	49.5	.0109	-69.0			289.9	11.7	277.
28	283.0	8447.	17.5	.062	49.7	.0114	-70.3			291.0	11.1	289.
29	274.0	8638.	18.0	.066	51.4	.0119	-71.1			292.5	11.8	288.
30	263.0	8880.	12.6	.048	36.1	.0124	-72.2			294.3	10.0	284.
31	255.0	9061.	22.7	.089	65.6	.0128	-73.1			295.6	10.3	298.
32	247.0	9248.	22.3	.090	64.4	.0133	-73.7			297.4	22.7	282.
33	240.0	9416.	25.3	.105	73.2	.0138	-73.7			299.9	9.4	289.
34	230.0	9665.	32.0	.139	92.4	.0147	-73.6			303.8	2.8	62.
35	221.0	9898.	39.2	.177	113.0	.0158	-72.7			308.6	13.0	287.
36	213.0	10115.	44.3	.208	127.1	.0169	-71.8			313.2	14.8	292.
37	204.0	10370.	48.3	.237	138.6	.0185	-71.8			317.1	9.9	298.
38	200.0	10487.	49.3	.247	141.3	.0192	-71.8			318.9	8.3	319.
39	192.0	10727.	51.3	.267	147.2	.0208	-72.0			322.4	8.3	304.
40	184.1	10976.	48.6	.264	138.8	.0225	-71.1			327.7	7.0	294.
41	176.4	11229.	54.6	.310	155.7	.0241	-70.8			332.2	6.7	305.
42	169.1	11479.	65.7	.389	188.3	.0261	-71.7			334.8	7.5	314.
43	163.0	11695.	71.2	.437	204.5	.0280	-72.1			337.6	7.6	322.
44	157.0	11916.	81.4	.518	233.8	.0302	-72.2			341.0	7.2	327.
45	151.0	12145.	88.1	.583	253.8	.0327	-72.7			344.1	7.4	306.
46	145.1	12379.	98.7	.680	284.6	.0355	-73.0			347.5	5.8	283.
47	139.4	12614.	109.2	.783	315.5	.0387	-73.3			351.0	2.6	287.
48	133.6	12862.	121.7	.911	352.6	.0424	-73.9			354.2	1.4	330.
49	128.2	13103.	129.7	1.012	376.3	.0464	-74.2			357.9	.8	346.

STATION: SOUTH POLE				LAUNCH DATE: 4 JUN 89 728 Z				ECC SONDE: 4A4419				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	123.5	13320.	145.1	1.175	422.9	.0503	-75.1			360.1	1.7	292.
51	118.8	13545.	165.1	1.390	481.5	.0549	-75.2			363.8	3.0	301.
52	114.0	13784.	158.4	1.389	461.9	.0601	-75.2			368.1	2.9	20.
53	109.5	14017.	142.4	1.300	417.6	.0649	-76.3			370.3	3.5	318.
54	105.0	14259.	126.0	1.200	370.1	.0695	-76.6			374.2	4.6	281.
55	100.5	14510.	147.6	1.469	434.7	.0740	-77.1			378.0	1.9	281.
56	96.5	14743.	165.9	1.719	490.6	.0788	-77.9			380.8	4.2	286.
57	92.5	14985.	174.8	1.890	516.8	.0844	-77.9			385.4	2.3	281.
58	89.0	15206.	183.8	2.065	543.6	.0897	-77.9			389.7	.8	211.
59	85.6	15428.	180.5	2.109	535.9	.0953	-78.8			392.4	1.3	281.
60	82.1	15666.	172.7	2.104	514.3	.1011	-79.3			396.1	2.1	69.
61	78.7	15906.	175.2	2.226	522.7	.1069	-79.6			400.2	3.4	82.
62	75.2	16163.	177.4	2.359	530.5	.1131	-80.1			404.3	1.9	65.
63	72.0	16408.	172.3	2.393	517.6	.1192	-81.0			407.5	1.5	54.
64	69.0	16648.	164.9	2.390	494.0	.1249	-80.5			413.7	3.1	94.
65	65.8	16916.	157.0	2.386	472.5	.1310	-81.3			417.4	3.8	101.
66	63.0	17160.	153.7	2.440	463.0	.1362	-81.5			422.2	2.3	63.
67	60.3	17406.	149.8	2.484	451.2	.1415	-81.5			427.5	1.8	47.
68	57.7	17653.	149.8	2.596	452.2	.1466	-81.9			432.1	.9	78.
69	55.0	17921.	149.1	2.711	450.2	.1522	-81.9			438.1	1.9	55.
70	52.4	18192.	147.9	2.823	449.5	.1579	-83.2			441.2	17.1	288.
71	50.0	18452.	148.4	2.968	451.6	.1634	-83.4			446.7	4.0	50.
72	47.8	18702.	146.4	3.063	446.2	.1686	-83.8			451.5	21.0	89.
73	45.7	18951.	142.4	3.116	435.4	.1737	-84.3			456.0	15.7	19.
74	43.6	19212.	126.0	2.890	384.6	.1788	-84.0			463.1	3.4	66.
75	41.8	19445.	121.9	2.916	373.0	.1829	-84.5			467.2	9.2	165.
76	39.9	19702.	115.7	2.900	353.6	.1873	-84.1			474.5	9.1	60.
77	38.0	19972.	110.8	2.916	340.3	.1917	-85.1			478.6	8.4	54.
78	36.3	20224.	107.6	2.964	330.3	.1956	-85.1			484.9	4.8	43.
79	34.8	20456.	103.2	2.966	315.9	.1992	-84.5			492.4	2.6	43.
80	33.0	20750.	88.0	2.667	268.7	.2033	-84.1			500.9	3.4	72.
81	31.4	21025.	78.8	2.510	240.7	.2066	-84.1			508.1	4.8	71.
82	30.0	21278.	74.8	2.493	228.3	.2094	-84.0			515.3	3.8	59.
83	28.5	21562.	71.9	2.523	219.0	.2124	-83.8			523.4	3.7	118.
84	27.2	21822.	70.4	2.588	214.0	.2150	-83.2			532.1	7.7	125.
85	25.8	22116.	70.5	2.733	214.3	.2179	-83.2			540.1	7.0	118.
86	24.4	22425.	70.0	2.869	214.2	.2209	-84.3			545.5	4.1	125.
87	23.2	22704.	61.9	2.668	189.0	.2236	-84.1			554.0	6.9	118.
88	22.2	22948.	59.8	2.694	183.1	.2257	-84.5			559.8	10.3	103.
89	21.1	23229.	59.7	2.829	182.9	.2281	-84.7			567.4	9.3	94.
90	20.2	23470.	58.8	2.911	179.2	.2301	-83.6			578.1	10.2	88.
91	19.3	23723.	56.4	2.922	171.1	.2322	-82.8			588.0	13.4	85.
92	18.5	23960.	55.2	2.984	166.6	.2341	-81.7			598.6	12.6	84.
93	17.6	24240.	55.3	3.142	166.5	.2362	-81.3			608.4	10.1	79.
94	16.9	24468.	56.4	3.337	170.0	.2380	-81.5			614.9	6.6	69.
95	16.0	24775.	55.1	3.444	166.3	.2404	-81.9			623.4	6.1	55.
96	15.3	25026.	52.3	3.418	156.9	.2423	-80.8			635.0	10.6	62.
97	14.5	25328.	50.0	3.448	150.4	.2445	-81.3			643.0	13.0	56.
98	13.6	25689.	49.9	3.669	149.4	.2470	-80.3			658.5	12.6	51.
99	13.0	25945.	44.4	3.415	132.5	.2488	-79.6			669.4	11.1	58.
100	12.5	26167.	39.9	3.192	118.5	.2501	-78.8			679.9	14.1	71.
101	12.0	26400.	38.9	3.242	115.1	.2513	-78.3			689.7	15.7	82.
102	11.4	26693.	38.0	3.333	112.3	.2529	-77.9			701.0	15.9	83.
103	10.8	27003.	37.0	3.426	108.7	.2545	-76.8			716.1	15.9	83.

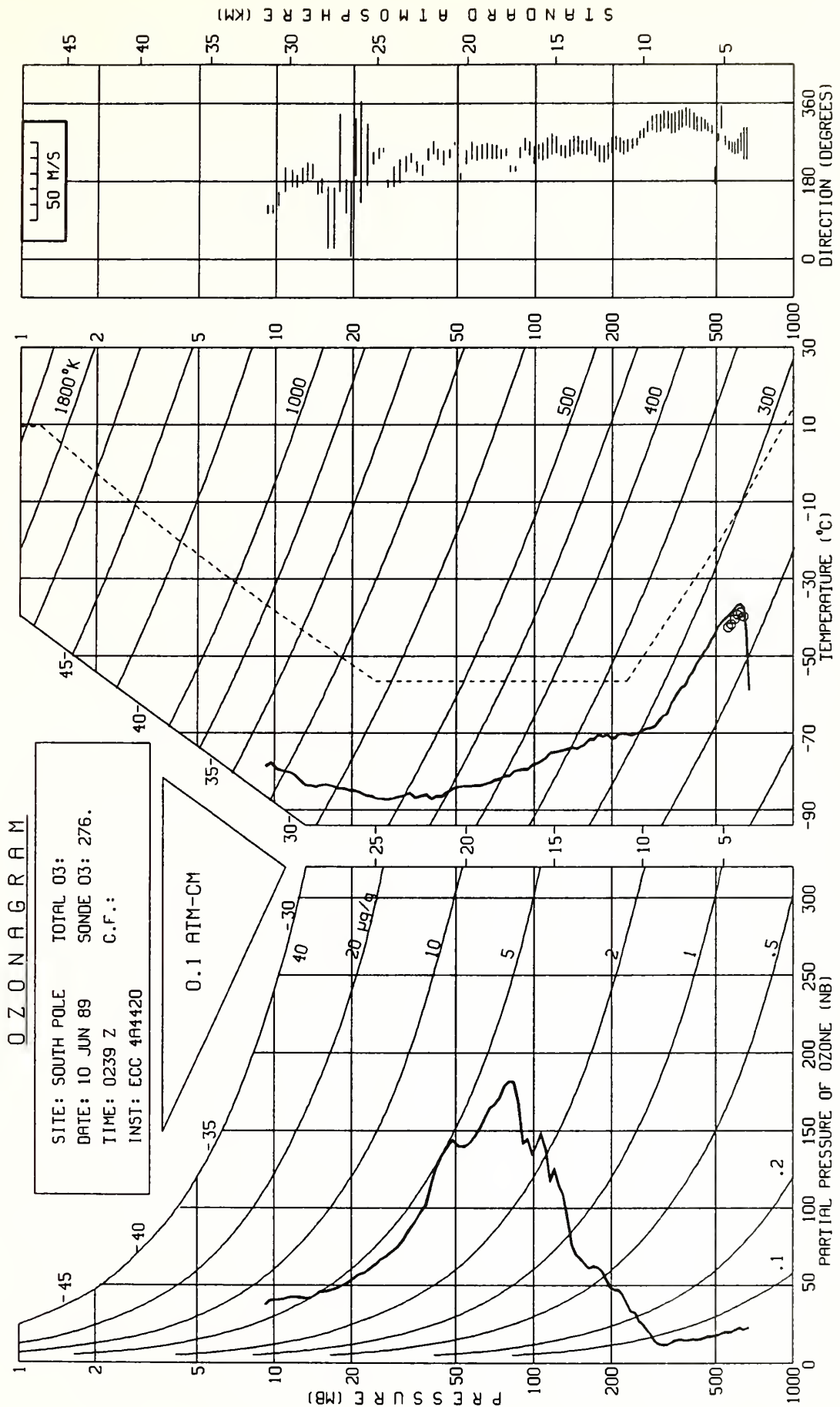
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
19.0	15.7	65.7	161.2	127.4	63.0	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX XP T CORR	COMMENTS
1110104068907	99	ECC TOTAL O3 FROM SONDE DATA 283
ISNNYYMMJJGG	PPPP P3TTTDDDDFFFP PPPP P3TTTDDDDFFFP PPPP P3TTTDDDDFFFP PPPP P3TTTDDDDFF	
1110204068907	676 19-59	500 16-46190 9 300 17-69279 13 200 49-72319 8
1110304068907	150 90-73302 7	100150-77282 2 70167-81 80 3 50148-83 50 4
1110404068907	30 75-84 59	420.0 58-83 87 11 660 20-44251 40 630 20-38253 18
1110504068907	576 19-39224 8	263 13-72284 10 247 22-74282 23 176 55-71305 7
1110604068907	128130-74346 1	119165-75301 3 114158-75 20 3 105126-77281 5
1110704068907	89184-78211 1	60150-82 47 2 35103-85 43 310.8 37-77 83 16



STATION: SOUTH POLE LAUNCH DATE: 10 JUN 89 239 Z ECC SONDE: 4A4420
 SURFACE CONDITIONS: PRESSURE 672.6 MB, TEMPERATURE -59.0 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.5 ORD; TBOX 19.0 C AT 69.0 ORD;
 O3 ORD ZERO 31.1, BKGND 31.8, CAL 69.4; O3 BKGND 0.096 MICROAMP; FLOW RATE 25.7 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 276.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	672.6	2835.	22.9	.034	61.7	.0000	-59.0			239.8		
1	656.0	2997.	22.4	.034	56.4	.0005	-43.9			258.7	20.5	267.
2	640.0	3165.	21.5	.034	52.8	.0009	-37.6	-40.0	79.5	267.6	20.5	267.
3	623.0	3351.	22.9	.037	55.8	.0013	-36.8	-38.9	83.1	270.5	11.8	270.
4	606.0	3543.	22.0	.036	53.7	.0018	-37.0	-39.5	78.9	272.5	9.2	260.
5	590.0	3728.	21.1	.036	51.8	.0023	-38.0	-40.7	77.4	273.4	7.8	257.
6	573.0	3929.	19.8	.035	48.9	.0028	-39.1	-42.0	75.7	274.4	6.4	258.
7	558.0	4110.	19.9	.036	49.2	.0032	-39.8	-42.8	74.7	275.7	5.4	263.
8	541.0	4321.	19.9	.037	49.5	.0037	-40.7			277.0	5.9	274.
9	523.0	4551.	18.8	.036	46.9	.0042	-41.6			278.7	14.8	328.
10	508.0	4748.	18.0	.035	45.1	.0046	-42.8			279.5	4.8	281.
11	493.0	4949.	17.6	.036	44.5	.0050	-44.8			279.5	10.9	192.
12	480.0	5128.	17.1	.036	43.5	.0054	-46.0			280.1	5.3	299.
13	465.0	5338.	17.1	.037	43.9	.0058	-48.0			280.2	5.0	305.
14	451.0	5539.	16.2	.036	41.9	.0062	-49.2			281.1	6.5	312.
15	437.0	5745.	15.5	.035	40.2	.0066	-50.7			281.8	9.0	312.
16	423.0	5957.	15.1	.036	39.4	.0070	-52.2			282.5	9.5	313.
17	410.0	6158.	15.4	.038	40.7	.0074	-54.3			282.3	10.7	319.
18	396.0	6380.	14.7	.037	38.9	.0078	-55.6			283.5	11.8	325.
19	383.0	6591.	14.7	.038	39.3	.0082	-57.8			283.3	11.6	329.
20	370.0	6809.	15.1	.041	40.6	.0086	-58.4			285.3	10.9	325.
21	360.0	6981.	15.1	.042	40.7	.0089	-59.6			285.9	12.3	321.
22	347.0	7210.	14.3	.041	38.8	.0093	-61.3			286.6	13.2	316.
23	337.0	7391.	13.0	.039	35.6	.0096	-62.7			287.2	12.5	313.
24	326.0	7594.	11.8	.036	32.7	.0100	-65.2			286.5	11.0	322.
25	316.0	7783.	11.8	.037	32.9	.0103	-65.7			288.3	11.4	323.
26	305.0	7998.	12.2	.040	34.1	.0106	-66.8			289.8	11.7	315.
27	294.0	8219.	13.8	.047	39.0	.0109	-68.3			290.6	11.1	313.
28	283.0	8448.	18.7	.066	52.9	.0114	-68.9			293.0	9.0	315.
29	272.0	8685.	22.0	.081	62.1	.0120	-69.0			296.1	6.6	306.
30	263.0	8886.	25.5	.097	72.3	.0126	-69.4			298.4	6.0	291.
31	255.0	9070.	27.0	.106	76.6	.0132	-70.0			300.2	4.7	288.
32	247.0	9260.	32.4	.131	92.2	.0139	-70.4			302.3	4.5	271.
33	238.0	9480.	33.2	.139	94.8	.0149	-70.8			304.9	6.6	267.
34	229.0	9708.	38.6	.169	110.1	.0159	-70.5			308.7	8.3	263.
35	220.0	9946.	44.6	.203	127.1	.0172	-70.4			312.5	9.1	259.
36	213.0	10138.	47.1	.221	134.1	.0183	-70.4			315.4	9.1	264.
37	206.0	10336.	47.4	.230	135.6	.0195	-71.4			316.9	8.7	268.
38	198.4	10559.	48.8	.246	139.7	.0209	-71.4			320.3	9.7	263.
39	191.5	10768.	53.8	.281	153.2	.0223	-70.5			324.9	10.7	250.
40	184.5	10989.	59.5	.322	169.9	.0239	-71.1			327.5	10.7	243.
41	177.5	11218.	61.7	.348	175.9	.0257	-70.5			332.0	10.8	244.
42	170.9	11442.	62.5	.366	179.3	.0275	-71.8			333.5	9.2	255.
43	164.5	11667.	61.3	.373	175.8	.0294	-71.8			337.2	8.2	266.
44	158.0	11904.	63.8	.404	184.0	.0313	-73.0			339.1	9.0	259.
45	152.0	12131.	67.5	.444	195.2	.0333	-73.6			341.9	8.5	259.
46	146.5	12346.	69.9	.477	202.7	.0353	-74.2			344.5	9.8	266.
47	141.0	12569.	76.3	.541	221.0	.0374	-73.9			348.8	12.2	263.
48	135.6	12797.	94.0	.693	272.6	.0399	-74.2			352.2	10.6	257.
49	130.5	13020.	108.8	.834	316.5	.0428	-74.6			355.3	7.7	248.

STATION: SOUTH POLE				LAUNCH DATE: 10 JUN 89				239 Z	ECC SONDE: 4A4420			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	125.6	13243.	114.7	.913	333.9	.0461	-74.8			358.9	7.0	251.
51	120.8	13469.	125.0	1.035	364.3	.0496	-75.1			362.3	11.0	265.
52	115.9	13709.	117.9	1.017	343.9	.0537	-75.2			366.4	13.4	266.
53	111.6	13928.	137.2	1.229	402.6	.0573	-76.5			368.0	13.0	257.
54	107.2	14159.	147.9	1.380	436.0	.0617	-77.3			370.8	11.4	250.
55	103.0	14388.	141.1	1.370	417.1	.0662	-77.9			373.8	9.3	249.
56	98.7	14631.	134.9	1.367	399.9	.0708	-78.4			377.4	10.7	240.
57	94.9	14855.	144.4	1.522	430.6	.0750	-79.6			379.3	8.1	255.
58	91.0	15093.	141.8	1.558	422.9	.0797	-79.6			383.9	7.4	265.
59	87.2	15334.	168.8	1.936	503.8	.0847	-79.8			388.3	6.8	246.
60	83.8	15559.	181.3	2.163	542.1	.0901	-80.1			392.0	3.4	209.
61	80.3	15800.	181.6	2.262	546.5	.0961	-81.3			394.3	3.8	209.
62	77.0	16036.	178.3	2.316	536.8	.1021	-81.3			399.0	5.0	248.
63	73.9	16266.	171.2	2.317	517.3	.1078	-82.1			402.2	6.3	243.
64	71.0	16490.	166.9	2.351	504.8	.1131	-82.3			406.5	8.6	247.
65	67.8	16747.	164.6	2.428	499.7	.1191	-83.0			410.3	9.4	250.
66	65.0	16982.	158.6	2.440	482.6	.1245	-83.4			414.4	9.2	250.
67	62.2	17227.	151.5	2.436	462.0	.1300	-83.8			418.8	9.3	249.
68	59.5	17473.	146.5	2.462	446.6	.1352	-83.8			424.1	8.8	245.
69	56.8	17730.	142.1	2.502	433.5	.1405	-84.0			429.4	10.8	252.
70	54.0	18010.	139.8	2.589	426.7	.1461	-84.0			435.6	8.5	236.
71	51.3	18294.	140.0	2.729	427.5	.1517	-84.1			441.6	3.8	192.
72	48.8	18571.	144.0	2.951	440.7	.1572	-84.5			447.0	1.5	267.
73	46.5	18837.	139.7	3.004	429.8	.1627	-85.5			450.8	5.4	244.
74	44.2	19115.	133.4	3.018	412.9	.1681	-86.6			454.9	9.2	234.
75	42.1	19381.	125.6	2.983	388.7	.1732	-86.6			461.3	6.9	243.
76	40.4	19606.	115.3	2.854	357.9	.1772	-87.2			465.1	7.8	258.
77	38.6	19855.	101.9	2.640	314.5	.1811	-86.2			473.9	7.3	243.
78	36.7	20131.	96.6	2.632	298.9	.1851	-86.6			479.7	7.0	206.
79	35.0	20390.	90.8	2.594	281.6	.1886	-87.0			485.2	6.9	214.
80	33.3	20662.	85.5	2.568	263.5	.1921	-85.7			495.4	5.8	234.
81	31.6	20949.	79.7	2.522	246.2	.1956	-86.4			501.2	9.8	220.
82	30.0	21233.	74.8	2.493	231.6	.1987	-86.8			507.6	15.0	204.
83	28.4	21532.	71.7	2.525	222.8	.2019	-87.2			514.4	13.1	191.
84	27.0	21807.	68.8	2.548	213.8	.2047	-87.4			521.3	4.8	174.
85	25.9	22034.	66.9	2.583	207.6	.2070	-87.2			528.1	2.5	253.
86	24.9	22248.	64.2	2.578	199.2	.2090	-87.2			534.1	6.7	245.
87	23.7	22518.	61.3	2.586	189.7	.2115	-86.6			543.6	7.4	234.
88	22.5	22802.	58.6	2.604	181.1	.2139	-86.4			552.3	39.5	242.
89	21.2	23128.	57.1	2.693	175.8	.2166	-85.5			564.3	65.3	249.
90	20.3	23367.	54.5	2.685	167.3	.2185	-85.1			572.5	36.6	260.
91	19.5	23588.	52.4	2.687	160.8	.2202	-85.1			579.1	48.0	92.
92	18.6	23849.	50.6	2.720	154.8	.2222	-84.5			588.9	21.3	146.
93	17.6	24154.	48.5	2.756	148.4	.2244	-84.5			598.2	49.7	246.
94	16.8	24412.	47.3	2.815	144.2	.2261	-84.0			608.1	38.9	95.
95	15.9	24717.	46.2	2.906	140.6	.2282	-83.6			619.0	39.7	96.
96	15.0	25040.	45.9	3.060	139.9	.2302	-83.8			628.8	9.2	170.
97	14.5	25228.	43.8	3.021	133.8	.2314	-84.1			633.6	7.8	164.
98	13.8	25502.	41.7	3.022	127.3	.2331	-83.8			643.9	9.6	203.
99	13.2	25749.	41.7	3.159	127.1	.2346	-83.8			652.2	11.0	203.
100	12.6	26008.	42.3	3.357	128.0	.2361	-82.6			664.9	10.2	193.
101	12.0	26281.	42.5	3.542	127.9	.2377	-81.2			679.3	8.0	180.
102	11.5	26521.	42.4	3.687	127.2	.2391	-80.5			690.2	10.7	187.
103	10.8	26876.	41.1	3.806	123.0	.2412	-80.1			703.9	15.0	184.
104	10.2	27199.	40.7	3.990	121.5	.2430	-79.6			717.5	8.4	139.

STATION: SOUTH POLE			LAUNCH DATE: 10 JUN 89			239 Z	ECC SONDE: 4A4420					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	9.7	27515.	40.5	4.197	119.8	.2448	-77.9			735.2	5.0	115.
106	9.3	27750.	37.9	4.093	112.7	.2461	-78.8			740.8	5.0	115.

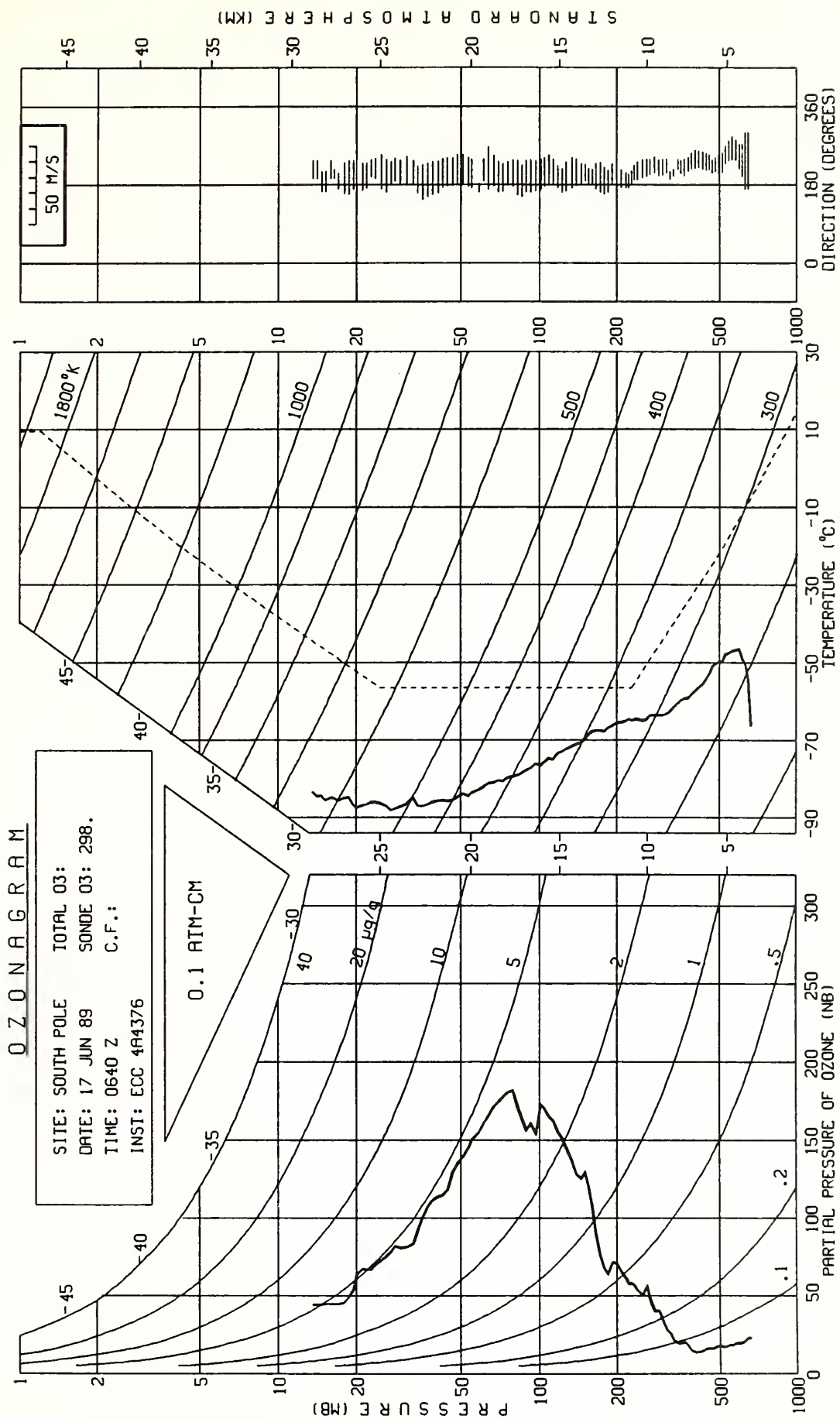
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
20.6	16.1	60.1	151.5	122.1	59.4	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS							
1110110068903				99	ECC TOTAL O3 FROM SONDE DATA 276							
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF		
1110210068903	673	23-59		500	18-44234	8	300	13-67314	11	200	49-71264	9
1110310068903	150	68-74262	9	100	137-78243	10	70	166-83248	9	50	142-84231	3
1110410068903	30	75-87204	1520.0	54-85198	4110.0	41-79130	7	656	22-44267	21		
1110510068903	640	22-38267	21	606	22-37260	9	383	15-58329	12	178	62-71244	11
1110610068903	141	76-74263	12	131	109-75248	8	121	125-75265	11	116	118-75266	13
1110710068903	107	148-77250	11	91	142-80265	7	87	169-80246	7	84	181-80209	3
1110810068903		57142-84252	11	44	133-87234	9	40	115-87258	8	39	102-86243	7
1110910068903	13.2	42-84203	11	9.3	38-79115	5						



STATION: SOUTH POLE LAUNCH DATE: 17 JUN 89 640 Z ECC SONDE: 4A4376
 SURFACE CONDITIONS: PRESSURE 665.1 MB, TEMPERATURE -66.4 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.9 ORD; TBOX 21.0 C AT 70.2 ORD;
 O3 ORD ZERO 29.0, BKGND 29.7, CAL 65.2; O3 BKGND 0.102 MICROAMP; FLOW RATE 25.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 298.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	665.1	2835.	22.8	.034	63.7	.0000	-66.4			232.4		
1	648.0	2997.	22.9	.035	60.4	.0005	-54.4			247.6	36.4	235.
2	631.0	3169.	21.2	.034	55.1	.0009	-50.6			253.8	36.4	235.
3	615.0	3337.	20.0	.033	51.5	.0014	-49.4			257.1	20.7	236.
4	597.0	3533.	19.5	.033	49.8	.0018	-46.7			262.4	15.6	245.
5	579.0	3736.	19.6	.034	49.9	.0023	-47.0			264.4	12.8	260.
6	561.0	3945.	18.3	.033	46.9	.0028	-47.3			266.4	14.7	264.
7	544.0	4148.	18.3	.034	46.8	.0032	-47.8			268.2	12.6	259.
8	528.0	4345.	17.4	.033	44.7	.0036	-48.1			270.1	11.3	249.
9	513.0	4534.	17.1	.033	44.3	.0040	-49.9			270.1	12.9	231.
10	499.0	4715.	18.0	.036	46.4	.0044	-49.9			272.3	11.7	227.
11	484.0	4915.	17.2	.036	44.5	.0048	-50.6			273.8	9.0	226.
12	471.0	5092.	16.0	.034	41.6	.0052	-51.2			275.2	8.3	223.
13	458.0	5273.	15.9	.035	41.7	.0055	-53.0			275.1	9.3	231.
14	444.0	5472.	15.9	.036	42.0	.0059	-54.5			275.7	10.7	233.
15	431.0	5662.	14.7	.034	38.9	.0063	-55.7			276.6	10.9	236.
16	418.0	5857.	13.9	.033	36.9	.0066	-56.5			277.9	11.0	239.
17	404.0	6073.	13.8	.034	36.9	.0070	-57.5			279.4	11.6	239.
18	390.0	6295.	14.6	.037	39.3	.0074	-58.4			281.0	10.0	235.
19	379.0	6474.	17.9	.047	48.3	.0077	-59.4			282.1	9.2	227.
20	367.0	6676.	20.3	.055	55.0	.0082	-59.5			284.5	10.3	220.
21	356.0	6866.	19.5	.055	52.9	.0087	-59.9			286.5	8.5	221.
22	345.0	7062.	19.6	.057	53.3	.0091	-60.7			287.9	6.2	227.
23	333.0	7282.	21.2	.064	57.9	.0097	-61.7			289.5	4.5	208.
24	322.0	7489.	26.1	.081	71.6	.0103	-62.8			290.8	5.3	202.
25	312.0	7683.	28.1	.090	77.4	.0109	-63.4			292.6	9.1	223.
26	301.0	7904.	34.1	.113	94.0	.0118	-63.8			295.0	10.5	221.
27	291.0	8111.	40.6	.140	112.0	.0127	-63.8			297.9	10.5	219.
28	281.0	8325.	40.4	.144	111.5	.0138	-63.8			300.9	10.3	226.
29	270.0	8570.	47.0	.174	129.8	.0151	-63.8			304.3	10.0	221.
30	262.0	8754.	56.1	.214	155.5	.0163	-64.8			305.5	11.1	219.
31	252.0	8991.	50.4	.200	140.0	.0179	-65.2			308.3	11.6	217.
32	242.0	9238.	53.3	.220	147.7	.0195	-64.8			312.5	11.6	211.
33	234.0	9443.	56.8	.243	157.5	.0210	-64.8			315.5	9.9	208.
34	229.0	9575.	58.3	.255	161.8	.0219	-65.1			317.1	9.0	196.
35	223.0	9737.	57.8	.259	160.1	.0231	-64.7			320.1	8.9	188.
36	218.0	9875.	61.5	.282	170.9	.0242	-65.3			321.2	9.7	190.
37	209.0	10132.	65.1	.311	181.2	.0262	-65.6			324.7	11.3	194.
38	200.0	10399.	71.1	.356	198.0	.0285	-65.7			328.6	12.7	202.
39	192.8	10622.	71.5	.371	199.5	.0306	-66.4			331.0	13.8	204.
40	185.7	10849.	64.1	.345	179.4	.0326	-67.0			333.5	14.2	188.
41	179.0	11070.	67.9	.379	191.0	.0345	-67.9			335.5	17.4	189.
42	172.4	11296.	76.9	.446	216.2	.0365	-67.7			339.6	19.5	197.
43	166.0	11524.	89.9	.542	252.5	.0389	-67.7			343.2	16.1	199.
44	161.0	11708.	107.4	.667	302.3	.0411	-67.9			345.8	10.4	197.
45	156.0	11897.	119.8	.768	338.1	.0438	-68.6			347.8	10.1	200.
46	151.0	12091.	129.4	.857	367.8	.0469	-70.0			348.7	10.9	208.
47	146.0	12291.	125.3	.858	357.6	.0503	-70.8			350.6	12.6	206.
48	139.9	12544.	128.0	.915	365.9	.0545	-71.2			354.2	16.9	208.
49	133.8	12807.	137.2	1.025	393.6	.0590	-71.8			357.7	19.7	207.

STATION: SOUTH POLE				LAUNCH DATE: 17 JUN 89				640 Z		ECC SONDE: 4A4376			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	127.3	13100.	145.4	1.142	418.4	.0644	-72.5			361.5	18.5	198.	
51	122.9	13307.	151.2	1.230	436.4	.0684	-73.1			364.1	14.9	190.	
52	118.1	13540.	155.3	1.315	449.3	.0732	-73.6			367.5	14.1	198.	
53	113.3	13782.	162.3	1.432	473.4	.0783	-75.2			368.8	16.2	210.	
54	108.8	14017.	165.0	1.517	480.6	.0835	-74.9			373.6	18.9	214.	
55	104.8	14234.	170.1	1.623	497.7	.0883	-75.8			375.9	19.0	209.	
56	101.2	14435.	172.6	1.706	507.5	.0930	-76.8			377.8	19.5	203.	
57	96.7	14697.	154.0	1.593	451.7	.0990	-76.3			383.7	19.6	200.	
58	92.5	14952.	160.6	1.736	473.8	.1044	-77.4			386.4	20.9	200.	
59	89.0	15173.	156.1	1.754	461.5	.1093	-77.9			389.7	20.0	199.	
60	85.8	15382.	162.8	1.897	483.0	.1137	-78.6			392.5	20.3	189.	
61	82.4	15612.	170.8	2.073	508.6	.1190	-79.3			395.7	22.3	196.	
62	79.0	15851.	181.9	2.303	542.4	.1246	-79.6			399.7	16.9	206.	
63	75.5	16108.	180.6	2.392	539.8	.1311	-79.9			404.2	15.0	206.	
64	72.3	16353.	177.5	2.455	532.7	.1372	-80.8			407.4	17.8	196.	
65	69.5	16575.	174.3	2.508	522.6	.1427	-80.6			412.4	19.8	198.	
66	66.7	16807.	171.2	2.567	514.7	.1483	-81.2			416.1	19.6	212.	
67	63.6	17074.	165.6	2.604	498.5	.1546	-81.3			421.4	27.5	218.	
68	61.0	17308.	160.2	2.626	484.4	.1599	-82.3			424.5	14.0	213.	
69	58.6	17532.	154.8	2.642	469.9	.1648	-83.0			427.7	6.2	173.	
70	55.0	17885.	150.2	2.731	457.8	.1725	-83.8			433.8	18.6	205.	
71	53.5	18038.	145.0	2.710	444.3	.1756	-84.7			435.0	18.8	209.	
72	51.0	18302.	139.0	2.725	424.1	.1810	-84.0			442.8	19.3	214.	
73	48.5	18580.	134.7	2.777	413.3	.1864	-84.9			446.9	18.6	216.	
74	46.5	18812.	129.2	2.778	398.0	.1908	-85.7			450.3	18.1	210.	
75	44.5	19053.	118.1	2.654	364.3	.1951	-85.9			455.5	18.2	210.	
76	42.7	19280.	114.6	2.684	353.0	.1989	-85.7			461.4	18.4	207.	
77	40.9	19516.	113.7	2.780	350.6	.2028	-85.9			466.7	20.6	197.	
78	39.0	19777.	111.4	2.856	344.1	.2070	-86.2			472.5	21.4	195.	
79	37.3	20020.	107.1	2.871	331.9	.2109	-86.8			477.0	21.6	191.	
80	35.7	20259.	100.6	2.818	312.4	.2144	-87.2			481.9	22.6	186.	
81	34.2	20493.	92.2	2.696	286.3	.2177	-87.2			487.8	17.4	192.	
82	32.8	20722.	83.6	2.549	256.8	.2207	-85.1			499.2	14.4	210.	
83	31.0	21032.	81.4	2.626	251.8	.2244	-86.6			503.4	16.9	214.	
84	29.2	21358.	80.8	2.767	251.2	.2282	-87.4			509.8	14.9	210.	
85	28.0	21586.	82.1	2.932	255.7	.2308	-87.9			514.7	14.9	214.	
86	27.0	21783.	78.4	2.904	244.8	.2331	-88.3			518.9	15.2	206.	
87	25.9	22009.	75.2	2.903	233.6	.2357	-87.2			528.1	20.8	200.	
88	24.8	22246.	72.8	2.935	225.3	.2382	-86.6			536.6	22.0	209.	
89	23.5	22540.	69.8	2.970	215.4	.2412	-86.2			546.1	13.1	217.	
90	22.7	22730.	66.8	2.943	206.4	.2431	-86.2			551.5	11.1	217.	
91	21.8	22951.	66.9	3.069	207.3	.2452	-86.8			556.1	16.1	201.	
92	21.0	23155.	67.1	3.195	207.9	.2472	-87.0			561.4	17.6	198.	
93	20.0	23421.	63.7	3.185	198.3	.2497	-87.6			567.3	16.0	208.	
94	19.4	23587.	53.6	2.763	166.1	.2512	-86.8			574.9	18.8	202.	
95	18.7	23788.	49.3	2.636	151.2	.2527	-84.9			586.7	21.7	197.	
96	17.9	24029.	45.5	2.542	139.7	.2544	-85.1			593.5	20.0	195.	
97	17.0	24313.	44.8	2.635	138.1	.2562	-85.9			599.7	10.2	188.	
98	16.4	24510.	44.8	2.732	137.6	.2574	-85.1			608.5	6.0	204.	
99	15.9	24681.	44.8	2.818	137.6	.2585	-85.1			613.9	11.5	215.	
100	15.2	24928.	44.8	2.947	138.1	.2601	-85.7			619.9	13.3	188.	
101	14.7	25112.	44.5	3.027	136.3	.2613	-84.5			629.8	12.9	187.	
102	14.1	25343.	44.5	3.156	136.3	.2627	-84.7			636.7	11.8	215.	
103	13.6	25542.	44.4	3.265	135.2	.2640	-83.6			647.3	11.8	215.	

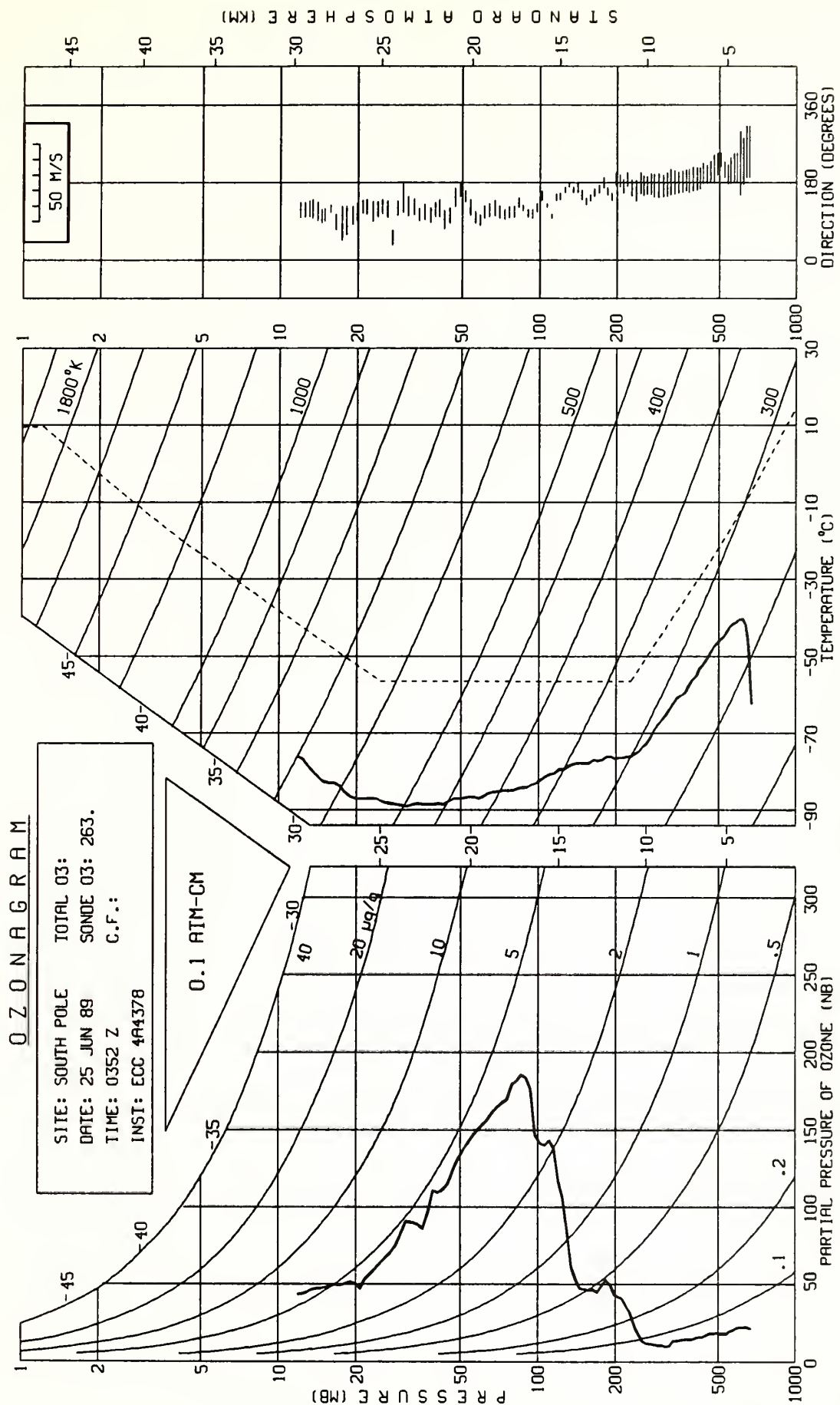
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
19.3	25.4	88.2	165.1	122.5	64.5	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110117068907			99		ECC TOTAL O3 FROM SONDE DATA 298
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110217068907	665	23-66		500	18-50227 12 300 35-64221 11 200 71-66202 13
1110317068907	150	129-70208	11	100	168-77202 20 70175-81198 19 50137-84215 19
1110417068907	30	81-87212	1620.0	64-88208	16 648 23-54235 36 597 20-47245 16
1110517068907	379	18-59227	9	333	21-62208 5 262 56-65219 11 252 50-65217 12
1110617068907	179	68-68189	17	140	128-71208 17 105170-76209 19 97154-76200 20
1110717068907	89	156-78199	20	79	182-80206 17 45118-86210 18 37107-87191 22
1110817068907	33	84-85210	1418.7	49-85197	2215.2 45-86188 1313.6 44-84215 12



STATION: SOUTH POLE LAUNCH DATE: 25 JUN 89 352 Z ECC SONDE: 4A4378
 SURFACE CONDITIONS: PRESSURE 670.3 MB, TEMPERATURE -62.5 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.8 ORD; TBOX 26.5 C AT 72.9 ORD;
 O3 ORD ZERO 35.2, BKGND 35.8, CAL 71.0; O3 BKGND 0.088 MICROAMP; FLOW RATE 28.0 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 263.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	670.3	2835.	21.4	.032	58.6	.0000	-62.5			236.1		
1	652.0	3012.	21.9	.034	56.2	.0005	-47.9			254.6	33.5	252.
2	635.0	3188.	22.4	.035	56.0	.0009	-42.1			263.0	33.5	252.
3	619.0	3362.	22.3	.036	55.2	.0014	-40.5			266.8	30.5	230.
4	602.0	3551.	22.3	.037	55.4	.0019	-40.6			268.8	41.1	225.
5	585.0	3746.	21.9	.037	54.5	.0024	-41.3			270.2	18.8	215.
6	570.0	3922.	20.5	.036	51.0	.0028	-41.7			271.8	19.1	214.
7	550.0	4164.	19.6	.036	49.0	.0034	-42.5			273.7	16.7	208.
8	540.0	4288.	18.1	.034	45.7	.0036	-43.7			273.6	12.9	199.
9	523.0	4502.	18.2	.035	46.0	.0041	-45.0			274.6	10.3	210.
10	506.0	4722.	18.2	.036	46.3	.0046	-46.0			275.9	9.0	233.
11	491.0	4922.	18.7	.038	47.7	.0050	-46.8			277.3	14.2	223.
12	477.0	5114.	18.2	.038	46.6	.0054	-47.9			278.3	18.6	211.
13	461.0	5338.	18.2	.039	46.9	.0059	-49.5			279.1	14.2	204.
14	448.0	5525.	17.2	.038	44.8	.0063	-51.2			279.2	11.9	199.
15	432.0	5760.	15.8	.037	41.5	.0068	-52.7			280.2	13.5	201.
16	420.0	5942.	15.8	.038	41.6	.0071	-53.5			281.4	14.0	190.
17	409.0	6112.	15.3	.037	40.6	.0074	-55.4			281.2	14.5	189.
18	395.0	6333.	14.4	.036	38.4	.0079	-56.5			282.5	15.3	188.
19	382.0	6545.	14.4	.038	38.6	.0082	-57.9			283.3	14.9	184.
20	371.0	6728.	14.4	.039	38.9	.0086	-59.6			283.5	13.7	185.
21	360.0	6916.	14.0	.039	37.9	.0089	-60.3			285.0	13.5	182.
22	347.0	7145.	13.5	.039	36.8	.0093	-60.9			287.1	13.6	180.
23	335.0	7363.	13.6	.041	37.2	.0097	-62.3			288.2	15.1	181.
24	324.0	7569.	10.2	.031	28.2	.0100	-63.8			288.9	16.7	181.
25	313.0	7780.	9.8	.031	27.2	.0103	-65.3			289.6	15.6	175.
26	302.0	7997.	10.7	.035	29.8	.0105	-66.6			290.8	14.4	172.
27	291.0	8221.	10.7	.037	30.0	.0109	-67.9			292.0	15.1	173.
28	280.0	8451.	11.2	.040	31.7	.0112	-69.7			292.7	14.7	173.
29	272.0	8623.	11.6	.043	33.3	.0114	-71.4			292.7	13.3	176.
30	263.0	8821.	11.7	.044	33.6	.0117	-73.0			293.2	11.9	173.
31	255.0	9002.	13.1	.051	37.8	.0120	-73.6			294.9	12.7	173.
32	247.0	9188.	17.3	.070	50.2	.0124	-74.8			295.8	13.8	178.
33	238.0	9403.	22.3	.094	65.2	.0129	-75.5			297.8	13.5	161.
34	228.0	9651.	31.8	.139	93.2	.0137	-76.3			300.3	10.5	168.
35	220.0	9857.	36.2	.165	106.3	.0147	-76.3			303.4	9.0	187.
36	212.0	10071.	40.9	.193	120.1	.0157	-76.6			306.1	9.2	172.
37	206.0	10236.	41.7	.202	122.6	.0167	-76.6			308.6	8.2	184.
38	198.6	10446.	43.4	.219	127.5	.0179	-76.8			311.6	7.9	188.
39	191.4	10659.	49.6	.259	145.6	.0192	-76.3			315.7	4.5	147.
40	184.1	10883.	53.0	.288	155.5	.0207	-76.3			319.2	5.0	160.
41	177.0	11110.	49.1	.277	144.7	.0223	-77.1			321.5	6.8	180.
42	170.9	11311.	44.7	.262	131.7	.0236	-77.3			324.5	5.0	165.
43	164.4	11533.	46.7	.284	137.6	.0250	-77.1			328.4	4.8	156.
44	158.0	11761.	46.3	.293	136.9	.0264	-77.9			330.8	3.7	144.
45	152.2	11975.	46.7	.307	138.2	.0278	-77.9			334.3	4.4	137.
46	146.3	12201.	47.5	.325	140.4	.0292	-77.9			338.1	6.3	152.
47	140.6	12428.	53.0	.377	156.8	.0307	-77.9			342.0	6.0	168.
48	135.3	12648.	61.2	.452	181.1	.0324	-78.3			345.2	3.3	163.
49	130.2	12867.	84.6	.650	251.1	.0344	-78.8			348.1	2.9	175.

STATION: SOUTH POLE			LAUNCH DATE: 25 JUN 89			352 Z	ECC	SONDE: 4A4378				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	125.2	13089.	106.0	.847	316.1	.0371	-79.6			350.5	3.4	163.
51	120.2	13320.	117.2	.975	349.7	.0406	-79.6			354.6	4.2	148.
52	115.6	13541.	137.7	1.191	413.1	.0444	-80.6			356.6	4.2	146.
53	111.0	13770.	143.0	1.288	429.2	.0487	-80.8			360.5	2.5	101.
54	106.3	14013.	139.9	1.316	421.5	.0535	-81.5			363.6	2.6	127.
55	101.8	14255.	141.3	1.388	427.7	.0583	-82.4			366.4	6.1	149.
56	97.4	14502.	146.7	1.506	445.9	.0632	-83.2			369.5	5.6	122.
57	93.6	14723.	176.1	1.881	536.4	.0680	-83.6			373.0	5.9	107.
58	89.8	14953.	183.9	2.048	562.3	.0738	-84.3			375.9	5.0	108.
59	86.1	15185.	185.5	2.154	567.2	.0799	-84.3			380.5	3.9	121.
60	82.7	15408.	181.6	2.196	555.9	.0857	-84.5			384.5	6.2	133.
61	79.4	15633.	179.7	2.263	551.9	.0915	-85.1			387.8	7.3	112.
62	76.1	15866.	169.6	2.229	520.8	.0973	-85.1			392.5	7.3	111.
63	73.0	16095.	167.7	2.297	514.8	.1028	-85.1			397.2	6.4	106.
64	69.6	16358.	164.9	2.369	507.0	.1090	-85.3			402.2	8.2	111.
65	66.7	16592.	161.7	2.424	497.6	.1144	-85.5			406.7	10.0	120.
66	63.6	16853.	156.2	2.456	481.6	.1204	-85.9			411.3	8.5	116.
67	60.8	17100.	153.2	2.520	474.2	.1259	-86.6			415.3	8.0	111.
68	58.4	17319.	150.2	2.572	466.4	.1306	-87.2			418.7	7.0	92.
69	56.1	17538.	146.7	2.615	454.5	.1353	-86.8			424.5	7.8	99.
70	53.8	17767.	142.0	2.639	439.8	.1400	-86.8			429.6	10.2	122.
71	51.5	18005.	137.4	2.668	426.1	.1448	-87.0			434.5	7.3	148.
72	49.2	18254.	131.2	2.667	407.3	.1496	-87.2			439.7	8.6	163.
73	47.0	18503.	124.3	2.645	386.0	.1542	-87.2			445.5	11.7	146.
74	44.8	18764.	114.8	2.563	357.8	.1588	-87.9			450.0	10.2	103.
75	42.9	18999.	110.8	2.583	346.8	.1627	-88.7			453.5	12.0	94.
76	41.0	19244.	109.4	2.668	342.0	.1667	-88.5			459.9	11.1	120.
77	39.3	19472.	110.5	2.812	345.8	.1703	-88.7			465.0	9.3	116.
78	37.7	19697.	96.9	2.570	303.3	.1738	-88.7			470.5	9.2	104.
79	35.9	19961.	86.0	2.396	269.2	.1774	-88.7			477.1	9.8	111.
80	34.2	20223.	88.7	2.594	277.2	.1807	-88.5			484.4	8.5	106.
81	32.6	20482.	90.1	2.764	281.9	.1840	-88.7			490.5	10.3	123.
82	30.9	20771.	90.4	2.926	283.7	.1877	-89.2			496.8	12.5	125.
83	29.6	21003.	83.6	2.824	262.1	.1907	-89.0			503.6	18.3	143.
84	28.2	21265.	75.0	2.660	234.8	.1938	-88.7			511.2	9.2	120.
85	27.0	21500.	70.6	2.615	220.8	.1964	-88.5			518.2	9.5	51.
86	25.8	21746.	67.3	2.609	210.1	.1989	-88.3			525.6	10.7	118.
87	24.7	21982.	63.8	2.583	198.8	.2011	-87.9			533.5	9.0	124.
88	23.7	22207.	60.5	2.553	188.0	.2032	-87.2			541.7	10.2	117.
89	22.7	22441.	56.8	2.502	176.2	.2052	-87.2			548.4	12.6	113.
90	21.5	22737.	53.0	2.465	164.6	.2076	-87.2			557.0	9.5	123.
91	20.7	22944.	47.0	2.271	146.1	.2091	-87.2			563.1	8.3	123.
92	19.8	23186.	50.4	2.545	156.6	.2108	-87.2			570.3	11.0	111.
93	19.0	23411.	51.6	2.716	159.9	.2124	-86.8			578.3	12.2	104.
94	18.0	23707.	50.2	2.789	154.4	.2146	-85.5			591.3	18.9	92.
95	17.3	23926.	49.4	2.855	150.7	.2161	-84.0			603.1	21.9	85.
96	16.4	24222.	49.7	3.030	151.1	.2182	-83.2			614.8	9.8	88.
97	15.6	24501.	48.5	3.109	147.3	.2201	-83.2			623.6	5.0	119.
98	14.8	24794.	47.7	3.223	144.8	.2221	-82.8			634.4	8.1	105.
99	14.4	24947.	47.2	3.278	142.6	.2231	-82.1			641.8	8.6	102.
100	13.9	25145.	47.2	3.396	141.7	.2244	-81.0			652.0	12.0	113.
101	13.3	25395.	46.3	3.481	138.2	.2261	-79.6			665.1	12.3	118.
102	12.9	25568.	45.0	3.488	133.5	.2272	-78.6			674.4	10.1	119.
103	12.4	25794.	44.1	3.556	129.9	.2285	-77.0			687.8	9.8	116.
104	11.9	26031.	43.6	3.664	127.9	.2300	-76.3			698.2	9.8	116.

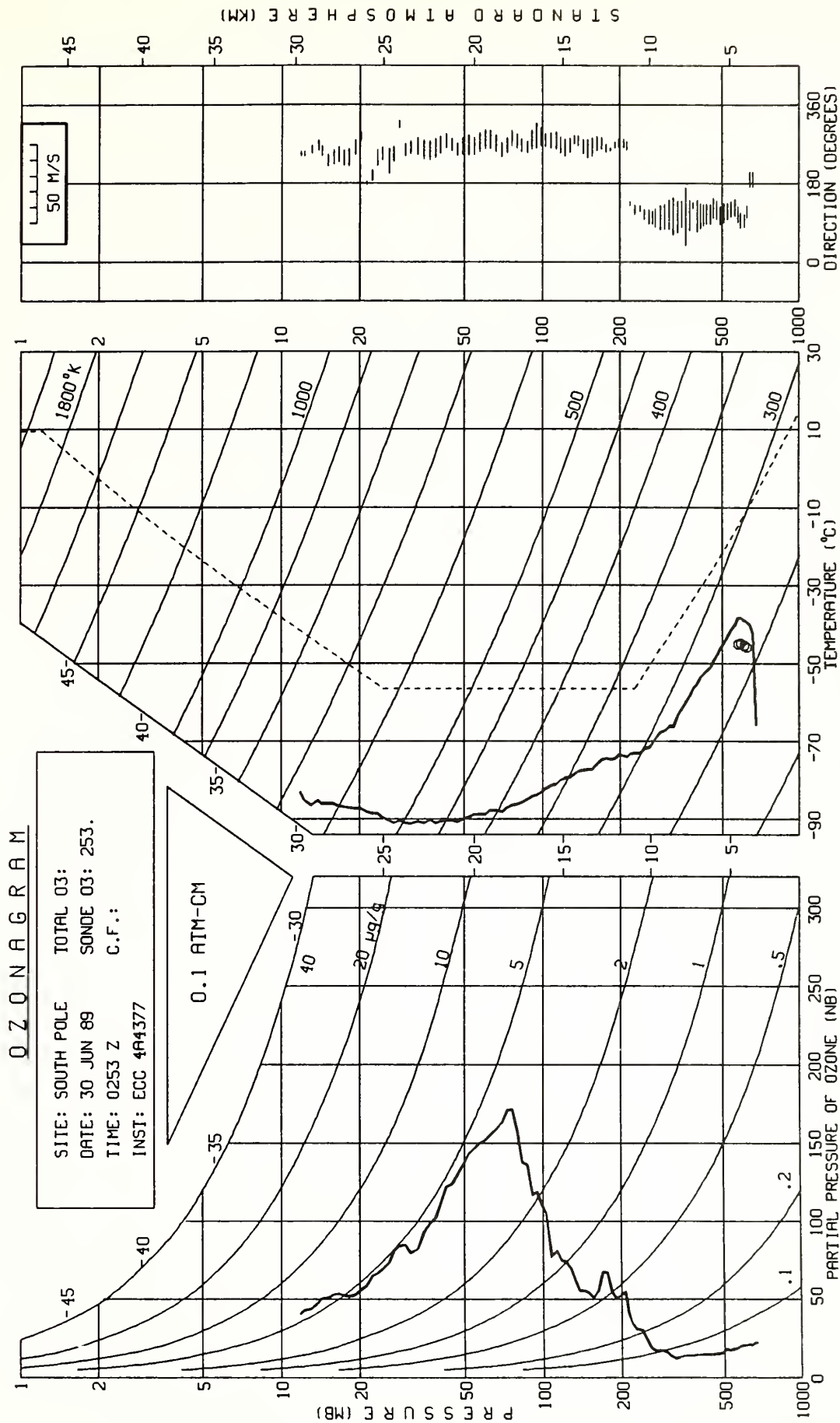
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
20.4	13.8	45.8	155.9	117.7	60.5	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110125068904			99		ECC TOTAL O3 FROM SONDE DATA 263
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110225068904	670	21-63		500	18-46229 11 300 11-67172 15 200 43-77187 8
1110325068904	150	47-78143	5	100143-83138	6 70165-85110 8 50133-87158 8
1110425068904	30	86-89137	1620.0	50-87114	10 652 22-48252 34 635 22-42252 34
1110525068904	619	22-41230	31	247 17-75178	14 184 53-76160 5 171 45-77165 5
1110625068904	135	61-78163	3	125106-80163	3 116138-81146 4 97147-83122 6
1110725068904	94176	-84107	6	90184-84108	5 45115-88103 10 39111-89116 9
1110825068904	36	86-89111	1014.8	48-83105	811.9 44-76116 10



STATION: SOUTH POLE LAUNCH DATE: 30 JUN 89 253 Z ECC SONDE: 4A4377
 SURFACE CONDITIONS: PRESSURE 675.2 MB, TEMPERATURE -66.0 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.9 ORD; TBOX 25.5 C AT 71.4 ORD;
 O3 ORD ZERO 26.3, BKGND 27.0, CAL 60.8; O3 BKGND 0.106 MICROAMP; FLOW RATE 27.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 253.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	675.2	2835.	22.5	.033	62.8	.0000	-66.0			231.8		
1	659.0	2991.	22.1	.034	55.3	.0004	-42.6			259.7	9.6	189.
2	642.0	3168.	20.7	.032	51.3	.0009	-40.3			264.3	9.6	189.
3	625.0	3351.	21.2	.034	52.4	.0013	-39.7	-46.1	51.4	267.0	7.7	115.
4	610.0	3518.	20.7	.034	51.0	.0017	-39.2	-45.6	51.7	269.4	8.5	94.
5	590.0	3746.	20.5	.035	50.5	.0023	-38.5	-45.0	51.0	272.8	10.3	96.
6	576.0	3911.	20.0	.035	49.3	.0026	-38.6	-45.3	50.2	274.6	10.0	109.
7	561.0	4092.	18.6	.033	46.1	.0030	-40.3			274.7	10.6	124.
8	542.0	4326.	18.1	.033	45.2	.0035	-41.6			275.9	9.9	122.
9	525.0	4542.	17.7	.034	44.3	.0040	-43.2			276.5	10.7	116.
10	509.0	4750.	18.1	.036	45.7	.0044	-44.9			276.8	12.6	112.
11	491.0	4990.	15.7	.032	39.9	.0049	-46.4			277.9	11.5	106.
12	475.0	5209.	15.2	.032	39.1	.0053	-48.2			278.3	12.1	119.
13	461.0	5405.	15.2	.033	39.2	.0057	-49.6			278.9	13.0	123.
14	449.0	5577.	14.7	.033	38.3	.0060	-51.2			279.0	12.9	109.
15	435.0	5783.	14.7	.034	38.4	.0063	-52.1			280.4	13.1	110.
16	422.0	5979.	14.7	.035	38.5	.0067	-53.0			281.7	13.7	108.
17	410.0	6164.	14.7	.036	38.7	.0070	-53.8			282.9	16.0	105.
18	399.0	6339.	14.6	.037	38.7	.0073	-55.4			283.2	19.7	105.
19	385.0	6566.	14.5	.038	38.6	.0077	-56.5			284.6	3.7	129.
20	373.0	6766.	14.0	.038	37.7	.0081	-58.5			284.5	19.4	106.
21	360.0	6988.	14.0	.039	37.8	.0085	-60.1			285.3	36.9	104.
22	347.0	7217.	13.9	.040	37.9	.0089	-61.8			286.0	16.9	109.
23	335.0	7434.	13.0	.039	35.7	.0093	-63.4			286.7	20.3	103.
24	322.0	7675.	12.4	.039	34.7	.0097	-66.4			285.9	23.9	104.
25	310.0	7905.	13.8	.045	38.5	.0100	-66.4			289.0	18.6	108.
26	299.0	8123.	16.0	.054	44.9	.0105	-67.4			290.5	15.8	103.
27	288.0	8349.	17.3	.060	48.8	.0109	-67.9			292.9	15.4	101.
28	276.0	8604.	17.2	.062	48.8	.0115	-69.3			294.5	11.7	101.
29	269.0	8757.	17.3	.064	49.2	.0119	-70.4			295.1	8.5	101.
30	260.0	8958.	19.1	.073	54.8	.0123	-71.8			295.9	9.0	103.
31	250.0	9190.	24.8	.099	71.2	.0130	-72.0			299.0	6.7	109.
32	240.0	9429.	30.4	.127	87.8	.0138	-73.3			300.5	3.8	122.
33	230.0	9678.	30.8	.134	89.0	.0148	-73.3			304.2	5.9	119.
34	220.0	9939.	34.7	.158	100.2	.0159	-73.4			307.9	2.6	134.
35	213.0	10127.	41.4	.194	120.1	.0168	-74.2			309.6	5.4	266.
36	207.0	10294.	54.5	.263	158.0	.0178	-74.0			312.3	5.5	272.
37	198.8	10530.	52.5	.264	151.8	.0195	-73.6			316.7	5.2	272.
38	191.2	10757.	50.5	.264	146.8	.0211	-74.6			318.5	4.0	268.
39	184.0	10980.	54.9	.298	159.7	.0226	-74.8			321.8	2.2	258.
40	176.6	11219.	67.2	.381	195.5	.0245	-74.6			325.8	5.1	261.
41	170.0	11441.	67.6	.398	196.7	.0265	-74.8			329.2	7.3	272.
42	163.0	11684.	55.5	.340	162.5	.0286	-76.0			331.1	8.8	271.
43	156.0	11937.	50.9	.326	150.2	.0305	-77.4			332.8	11.6	263.
44	150.0	12161.	54.3	.362	160.3	.0320	-77.4			336.6	11.7	260.
45	144.0	12395.	55.6	.386	164.2	.0338	-77.6			340.2	9.2	265.
46	138.0	12639.	55.5	.402	164.0	.0356	-77.8			344.1	6.6	277.
47	132.9	12854.	62.4	.470	185.1	.0373	-78.6			346.3	5.6	280.
48	127.8	13077.	69.8	.546	208.1	.0393	-79.4			348.7	9.2	267.
49	122.4	13322.	74.1	.605	221.0	.0417	-79.6			352.7	11.0	262.

STATION: SOUTH POLE LAUNCH DATE: 30 JUN 89 253 Z ECC SONDE: 4A4377

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	117.5	13553.	75.0	.638	224.4	.0440	-80.1			355.9	10.4	268.
51	112.9	13778.	81.2	.719	244.2	.0465	-81.2			358.0	11.0	278.
52	108.0	14027.	77.7	.719	234.0	.0492	-81.5			361.9	9.9	279.
53	103.0	14293.	104.9	1.018	317.4	.0524	-82.3			365.5	9.0	279.
54	99.0	14514.	110.6	1.117	336.1	.0557	-83.2			367.8	11.4	287.
55	95.2	14731.	118.8	1.248	362.5	.0591	-84.0			370.5	15.7	289.
56	91.4	14957.	117.0	1.280	357.8	.0629	-84.3			374.0	11.9	280.
57	87.3	15210.	135.9	1.557	417.2	.0672	-85.1			377.4	7.4	264.
58	83.2	15474.	137.7	1.655	424.8	.0723	-85.9			381.0	8.1	267.
59	79.8	15703.	157.4	1.972	486.6	.0769	-86.4			384.7	8.9	277.
60	76.3	15948.	171.3	2.245	530.0	.0826	-86.6			389.2	10.1	284.
61	73.0	16189.	171.1	2.344	531.3	.0886	-87.2			392.8	9.4	268.
62	70.0	16417.	163.5	2.336	510.6	.0941	-88.3			395.2	9.2	258.
63	66.2	16720.	159.0	2.402	495.5	.1012	-87.9			402.5	11.0	272.
64	63.0	16989.	155.2	2.463	483.7	.1073	-87.9			408.3	11.4	280.
65	60.2	17235.	151.8	2.522	475.9	.1128	-89.0			411.1	12.0	281.
66	57.5	17482.	149.9	2.607	469.8	.1182	-89.0			416.5	12.2	275.
67	54.6	17761.	146.9	2.690	460.4	.1242	-89.0			422.7	11.0	266.
68	52.0	18024.	143.1	2.752	450.3	.1298	-89.7			427.1	13.1	268.
69	49.5	18289.	136.4	2.756	430.3	.1353	-90.1			432.0	10.9	265.
70	47.0	18566.	130.0	2.766	411.8	.1407	-90.8			436.8	7.8	258.
71	44.8	18822.	123.8	2.763	391.5	.1456	-90.6			443.4	7.8	269.
72	42.5	19104.	122.1	2.873	386.2	.1507	-90.6			450.1	9.3	278.
73	40.4	19375.	111.2	2.752	352.2	.1554	-90.8			456.0	10.9	268.
74	38.6	19618.	102.1	2.645	323.7	.1593	-91.1			461.4	12.1	261.
75	36.9	19859.	98.9	2.680	312.2	.1629	-90.4			469.2	12.3	256.
76	34.9	20156.	93.3	2.673	295.9	.1671	-91.1			474.9	11.8	258.
77	33.0	20455.	82.1	2.488	260.0	.1711	-90.8			483.2	10.8	266.
78	31.1	20771.	79.9	2.569	253.6	.1749	-91.3			490.1	8.1	263.
79	29.7	21017.	85.0	2.862	269.6	.1778	-91.1			497.3	8.1	257.
80	28.2	21294.	84.3	2.989	266.8	.1813	-90.6			506.1	4.7	316.
81	26.9	21546.	81.0	3.011	256.9	.1844	-91.1			511.6	9.4	248.
82	25.8	21769.	73.8	2.860	233.5	.1869	-90.6			519.1	15.5	231.
83	24.4	22068.	69.3	2.840	218.0	.1901	-89.7			530.1	8.4	248.
84	23.3	22316.	66.7	2.863	208.9	.1926	-88.7			539.9	9.9	238.
85	22.3	22553.	65.1	2.919	203.7	.1948	-88.7			546.7	6.8	198.
86	21.2	22827.	58.7	2.769	183.4	.1974	-88.3			556.0	2.4	180.
87	20.1	23116.	56.0	2.786	174.1	.1998	-87.4			567.2	5.2	288.
88	19.1	23394.	52.9	2.770	164.4	.2020	-87.4			575.5	9.0	263.
89	18.1	23686.	51.8	2.862	160.9	.2042	-87.2			585.1	10.9	239.
90	17.3	23933.	52.6	3.040	163.1	.2060	-87.0			593.4	10.0	238.
91	16.5	24191.	53.5	3.242	165.6	.2080	-86.8			602.1	9.3	246.
92	15.8	24428.	53.1	3.361	163.8	.2098	-86.2			611.7	9.1	240.
93	15.0	24713.	50.9	3.393	157.1	.2119	-86.2			620.8	7.4	233.
94	14.2	25013.	50.5	3.556	155.8	.2141	-86.2			630.6	6.3	254.
95	13.8	25170.	47.8	3.464	146.8	.2153	-85.3			638.6	6.5	267.
96	13.0	25497.	44.1	3.392	136.5	.2174	-86.6			645.3	5.1	257.
97	12.2	25845.	43.1	3.533	132.4	.2196	-85.3			661.5	2.9	247.
98	11.8	26030.	40.6	3.441	123.3	.2207	-83.2			675.4	2.9	247.

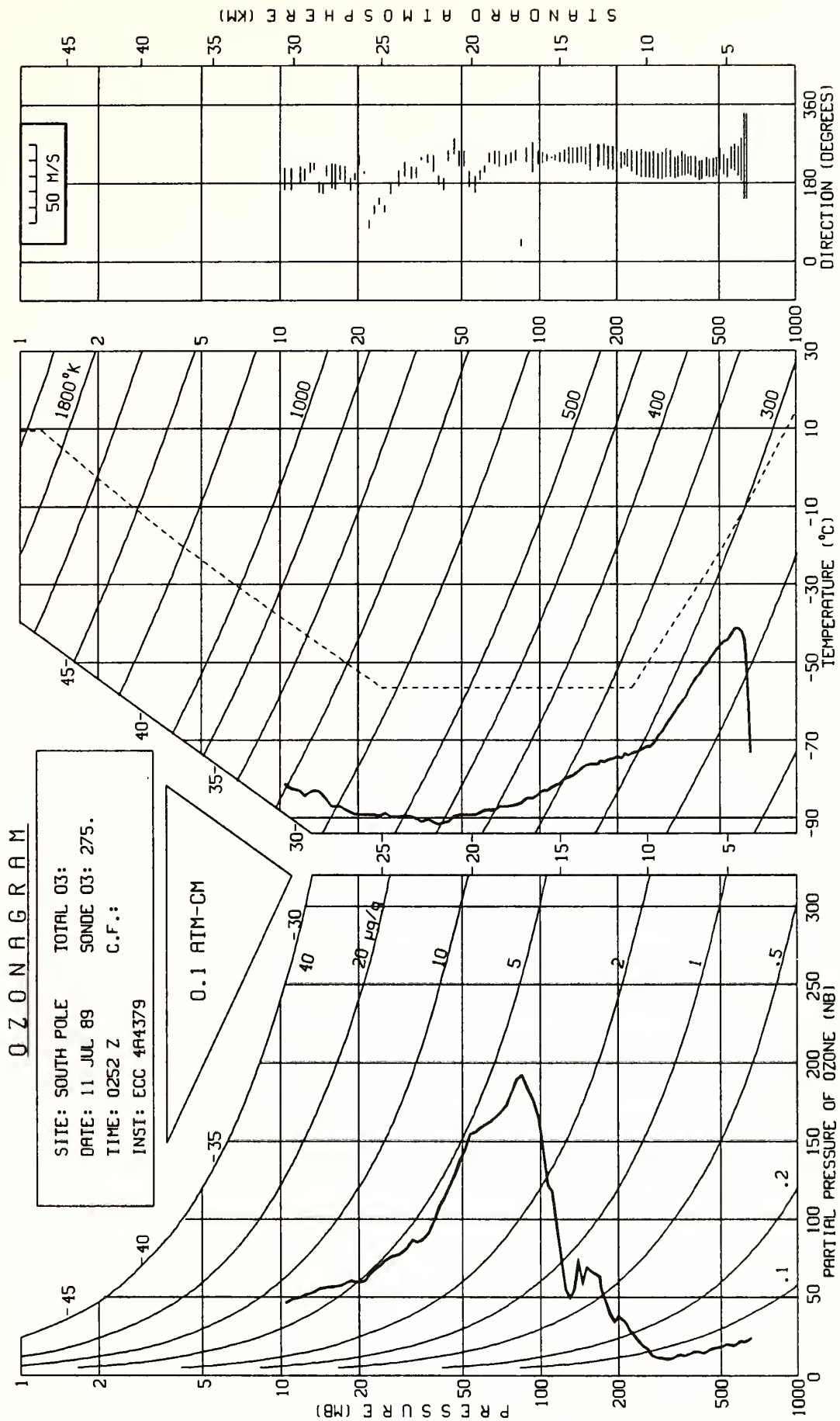
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
19.7	15.2	50.3	123.9	121.2	65.1	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX XP T CORR	COMMENTS
1110130068903	99	ECC TOTAL O3 FROM SONDE DATA 253
ISNNYYMMJJGG	PPPP P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110230068903	675 23-66	500 17-46109 12 300 16-67103 16 200 53-74272 5
1110330068903	150 54-77260 12	100109-83285 11 70164-88258 9 50138-90266 11
1110430068903	30 84-91258 820.0	56-87286 6 659 22-43189 10 642 21-40189 10
1110530068903	576 20-39109 10	322 12-66104 24 260 19-72103 9 240 30-73122 4
1110630068903	220 35-73134 3	207 55-74272 6 191 51-75268 4 170 68-75272 7
1110730068903	163 56-76271 9	138 56-78277 7 113 81-81278 11 108 78-82279 10
1110830068903	103105-82279 9	91117-84280 12 87136-85264 7 83138-86267 8
1110930068903	76171-87284 10	43122-91278 9 33 82-91266 1113.0 44-87257 5
1111030068903	11.8 41-83247 3	



STATION: SOUTH POLE LAUNCH DATE: 11 JUL 89 252 Z ECC SONDE: 4A4379
 SURFACE CONDITIONS: PRESSURE 658.4 MB, TEMPERATURE -73.3 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 78.3 ORD; TBOX 24.5 C AT 71.5 ORD;
 O3 ORD ZERO 31.2, BKGND 31.6, CAL 66.6; O3 BKGND 0.059 MICROAMP; FLOW RATE 26.1 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 275.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	658.4	2835.	24.1	.037	69.6	.0000	-73.3			225.2		
1	641.0	2999.	22.8	.036	60.5	.0005	-55.4			247.3	54.3	242.
2	626.0	3154.	22.0	.035	55.7	.0009	-44.7			261.2	54.3	242.
3	611.0	3317.	21.5	.035	53.9	.0013	-42.4			265.7	26.9	234.
4	595.0	3496.	22.0	.037	54.8	.0018	-41.6			268.6	18.9	231.
5	576.0	3717.	20.2	.035	50.4	.0023	-41.4			271.3	16.5	239.
6	559.0	3919.	19.0	.034	47.6	.0028	-42.7			272.1	14.4	238.
7	540.0	4152.	19.8	.037	50.0	.0033	-44.4			272.8	11.6	215.
8	522.0	4379.	19.9	.038	50.3	.0038	-44.8			275.0	13.0	223.
9	505.0	4600.	18.6	.037	47.3	.0044	-45.6			276.6	13.7	235.
10	490.0	4800.	18.1	.037	46.1	.0048	-46.6			277.8	11.2	218.
11	476.0	4992.	17.7	.037	45.2	.0052	-47.8			278.7	11.9	215.
12	460.0	5217.	17.2	.037	44.5	.0057	-49.2			279.5	11.5	215.
13	448.0	5390.	16.4	.037	42.4	.0060	-50.6			279.9	12.1	218.
14	430.0	5657.	14.5	.034	37.9	.0065	-51.7			281.9	12.1	211.
15	420.0	5809.	14.6	.035	38.3	.0068	-53.0			282.0	12.1	209.
16	405.0	6043.	15.5	.038	40.8	.0072	-54.3			283.3	13.3	217.
17	391.0	6267.	15.0	.038	39.9	.0076	-55.9			284.1	11.7	220.
18	380.0	6448.	14.1	.037	37.6	.0080	-57.2			284.7	10.6	221.
19	370.0	6617.	13.6	.037	36.6	.0082	-58.9			284.7	13.0	222.
20	359.0	6805.	12.7	.035	34.3	.0086	-60.1			285.5	15.7	225.
21	347.0	7017.	13.2	.038	35.9	.0089	-61.3			286.6	13.9	219.
22	338.0	7180.	12.8	.038	35.0	.0092	-62.5			287.1	13.4	216.
23	325.0	7420.	11.0	.034	30.4	.0095	-64.3			287.9	16.5	225.
24	312.0	7669.	10.5	.034	29.2	.0099	-66.0			289.0	18.0	226.
25	301.0	7886.	10.9	.036	30.5	.0102	-67.7			289.6	17.3	220.
26	290.0	8109.	11.3	.039	32.0	.0105	-69.0			290.8	16.1	219.
27	280.0	8318.	11.7	.042	33.5	.0108	-70.7			291.3	17.0	223.
28	270.0	8533.	13.1	.049	37.5	.0112	-71.8			292.7	15.9	223.
29	260.0	8756.	17.0	.065	48.8	.0116	-71.8			295.9	15.8	224.
30	250.0	8987.	18.8	.075	54.0	.0121	-72.4			298.3	17.4	226.
31	240.0	9227.	22.2	.093	64.1	.0127	-73.1			300.7	15.1	226.
32	230.0	9476.	26.1	.113	75.3	.0135	-73.4			304.0	13.9	232.
33	221.0	9709.	29.4	.133	85.3	.0143	-74.0			306.5	10.9	238.
34	215.0	9870.	33.3	.155	96.4	.0150	-73.6			309.7	7.8	235.
35	208.0	10063.	35.7	.172	103.9	.0159	-74.8			310.7	10.5	233.
36	200.0	10291.	38.1	.191	110.7	.0170	-74.3			314.9	13.0	236.
37	193.6	10480.	34.3	.177	99.9	.0179	-74.8			317.2	14.5	237.
38	186.0	10712.	39.3	.211	114.5	.0190	-75.1			320.3	14.6	239.
39	178.5	10951.	47.7	.267	139.4	.0203	-75.7			323.1	13.9	245.
40	171.1	11196.	55.4	.324	161.9	.0220	-75.5			327.3	10.1	250.
41	169.3	11257.	63.4	.374	186.0	.0225	-76.3			327.0	14.0	244.
42	157.5	11674.	66.4	.422	194.8	.0261	-76.3			333.8	16.8	240.
43	150.9	11920.	69.3	.459	203.7	.0284	-76.6			337.4	10.6	243.
44	145.5	12130.	59.3	.408	174.7	.0303	-77.3			339.8	9.9	247.
45	140.2	12342.	73.0	.521	216.3	.0321	-78.3			341.7	10.0	244.
46	135.0	12557.	55.0	.407	163.5	.0341	-79.1			343.9	10.0	244.
47	130.0	12771.	49.7	.382	148.4	.0357	-79.6			346.7	10.2	244.
48	125.0	12994.	55.1	.441	164.8	.0373	-80.1			349.7	7.2	243.
49	120.0	13224.	76.6	.638	230.6	.0392	-81.3			351.5	5.8	239.

STATION: SOUTH POLE			LAUNCH DATE: 11 JUL 89				252 Z	ECC SONDE: 4A4379				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	115.0	13462.	97.6	.849	294.2	.0419	-81.7			355.2	3.3	239.
51	111.0	13661.	117.9	1.062	356.5	.0447	-82.3			357.8	.8	239.
52	107.0	13865.	122.1	1.141	371.1	.0481	-83.2			359.8	4.4	239.
53	102.9	14083.	143.8	1.397	437.1	.0520	-83.2			363.8	6.8	239.
54	98.5	14325.	165.2	1.677	504.6	.0570	-84.1			366.5	7.7	239.
55	94.0	14584.	175.8	1.870	539.9	.0631	-85.1			369.5	18.9	240.
56	89.3	14866.	183.6	2.056	563.9	.0703	-85.1			375.0	8.8	246.
57	84.9	15144.	192.2	2.264	593.3	.0776	-86.2			378.3	4.3	43.
58	81.1	15394.	189.5	2.337	587.0	.0845	-86.8			382.0	6.8	244.
59	77.8	15621.	181.7	2.335	563.5	.0906	-87.0			386.2	7.0	239.
60	74.1	15886.	172.9	2.333	536.7	.0975	-87.2			391.1	7.0	234.
61	70.0	16196.	168.1	2.401	522.0	.1052	-87.2			397.5	9.8	235.
62	67.0	16434.	165.2	2.466	515.3	.1109	-88.1			400.7	8.4	239.
63	64.0	16683.	162.4	2.538	506.5	.1168	-88.1			405.9	6.2	239.
64	61.5	16899.	160.7	2.613	501.3	.1218	-88.1			410.6	4.2	213.
65	59.0	17123.	158.6	2.688	496.4	.1270	-88.7			414.0	5.8	199.
66	56.3	17376.	155.9	2.769	490.0	.1328	-89.4			418.0	10.7	177.
67	53.6	17640.	154.5	2.882	485.6	.1387	-89.4			423.9	10.2	190.
68	51.2	17887.	144.1	2.814	452.9	.1441	-89.4			429.5	9.8	237.
69	49.0	18123.	138.1	2.818	433.9	.1491	-89.4			434.9	9.8	237.
70	46.8	18370.	128.5	2.746	404.3	.1539	-89.7			440.1	9.7	265.
71	44.5	18640.	121.0	2.719	383.6	.1590	-91.1			443.0	6.7	243.
72	42.5	18885.	113.2	2.664	359.4	.1633	-91.3			448.3	7.7	178.
73	40.7	19115.	107.8	2.649	343.3	.1671	-91.8			452.6	6.2	187.
74	38.8	19369.	98.4	2.536	312.4	.1710	-91.3			460.1	10.3	225.
75	37.0	19623.	91.0	2.459	287.3	.1746	-90.4			468.9	5.2	236.
76	35.0	19920.	86.7	2.477	274.9	.1785	-91.1			474.5	1.2	236.
77	33.4	20170.	85.2	2.551	269.0	.1817	-90.4			482.8	6.5	204.
78	32.0	20400.	86.6	2.706	272.8	.1846	-89.9			490.0	7.8	204.
79	30.2	20711.	80.7	2.672	253.8	.1885	-89.7			498.8	8.8	212.
80	28.5	21022.	77.5	2.719	244.2	.1921	-89.9			506.5	10.1	191.
81	26.6	21392.	76.1	2.861	239.8	.1963	-89.9			516.6	7.0	169.
82	25.2	21683.	73.8	2.929	231.4	.1995	-89.0			527.3	3.9	121.
83	24.1	21923.	70.3	2.917	221.2	.2021	-89.7			532.0	4.3	139.
84	23.0	22175.	67.9	2.952	213.5	.2046	-89.4			539.9	5.4	119.
85	22.0	22414.	65.0	2.955	204.2	.2070	-89.4			546.8	5.4	85.
86	21.1	22639.	60.7	2.877	190.6	.2091	-89.4			553.3	1.5	205.
87	20.1	22900.	59.9	2.980	188.4	.2114	-89.4			561.0	6.1	234.
88	19.4	23091.	59.9	3.088	188.0	.2130	-89.2			567.5	4.6	195.
89	18.6	23318.	60.6	3.258	189.8	.2150	-88.7			575.8	7.8	178.
90	17.8	23556.	59.3	3.331	185.0	.2171	-88.1			585.1	9.9	202.
91	17.0	23806.	57.5	3.382	178.6	.2192	-87.2			595.7	9.4	205.
92	16.3	24035.	57.1	3.503	177.3	.2211	-87.2			602.9	15.9	195.
93	15.8	24205.	56.7	3.589	175.9	.2225	-87.2			608.3	15.9	197.
94	15.1	24452.	56.6	3.748	174.1	.2245	-85.5			621.7	6.1	209.
95	14.6	24638.	55.9	3.829	171.0	.2260	-84.3			631.7	6.0	168.
96	14.1	24831.	55.8	3.957	169.8	.2275	-83.4			641.3	7.1	171.
97	13.5	25073.	54.1	4.007	164.3	.2294	-83.2			649.9	4.0	219.
98	13.0	25283.	52.5	4.038	159.8	.2310	-83.6			655.7	6.4	216.
99	12.4	25545.	51.8	4.177	158.6	.2329	-84.5			661.2	7.5	199.
100	11.9	25773.	50.1	4.210	152.4	.2346	-83.2			673.8	11.0	199.
101	11.0	26211.	48.7	4.427	147.5	.2377	-82.6			691.2	13.9	190.
102	10.4	26525.	46.6	4.481	140.5	.2398	-81.5			706.4	13.9	190.

UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
20.7	13.9	46.0	150.9	121.3	67.2	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110111078903			99		ECC TOTAL O3 FROM SONDE DATA 275
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110211078903	658	24-73		500	18-46229 13 300 11-68220 17 200 38-74236 13
1110311078903	150	68-77244	10	100158-84239	7 70168-87235 10 50141-89237 10
1110411078903	30	80-90210	920.0	60-89229	6 641 23-55242 54 626 22-45242 54
1110511078903	576	20-41239	17	270 13-72223	16 194 34-75237 15 169 63-76244 14
1110611078903	146	59-77247	10	140 73-78244	10 135 55-79244 10 130 50-80244 10
1110711078903	125	55-80243	7	111118-82239	1 107122-83239 4 85192-86 43 4
1110811078903		54155-89190	10	41108-92187	6 37 91-90236 515.8 57-87197 16
1110911078903	14.1	56-83171	712.4	52-85199	810.4 47-82190 14

O Z O N A G R A M

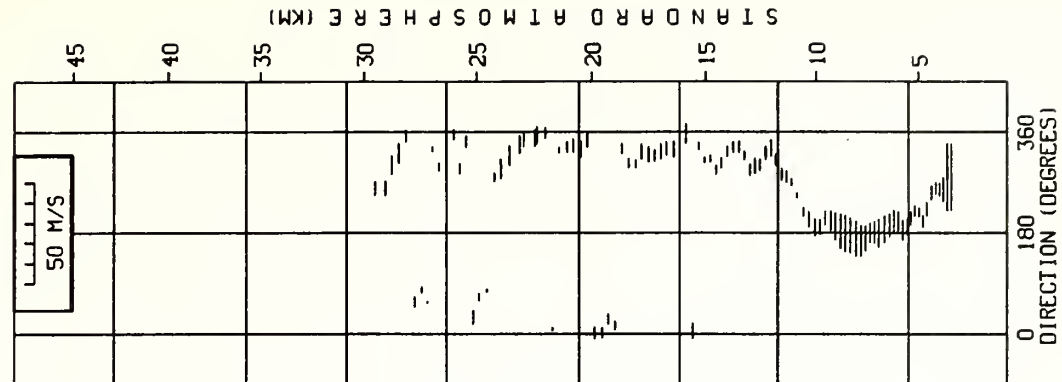
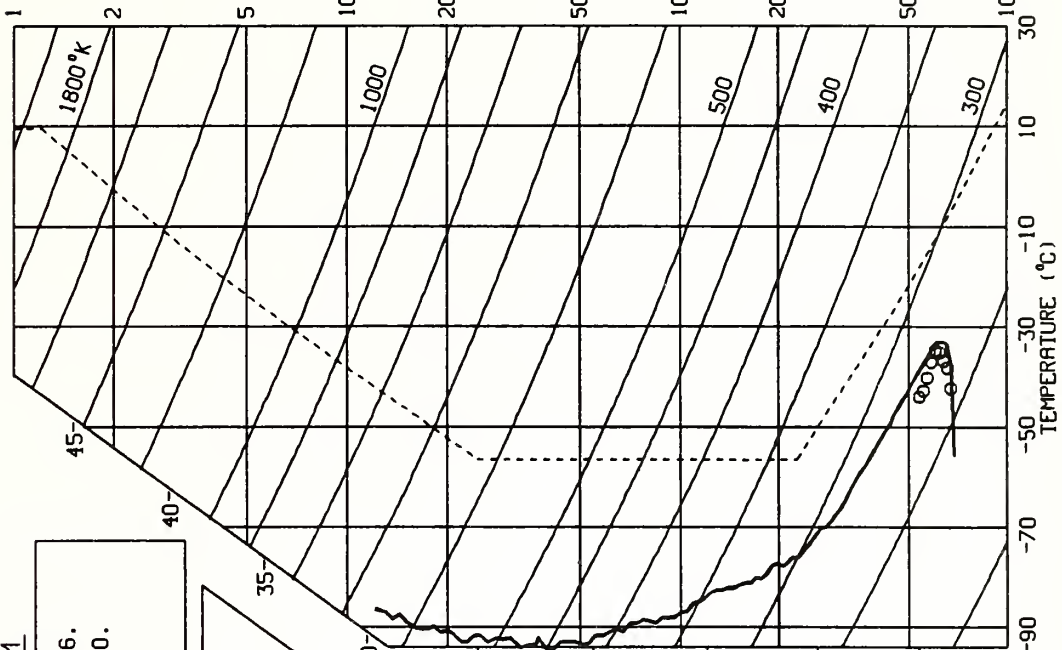
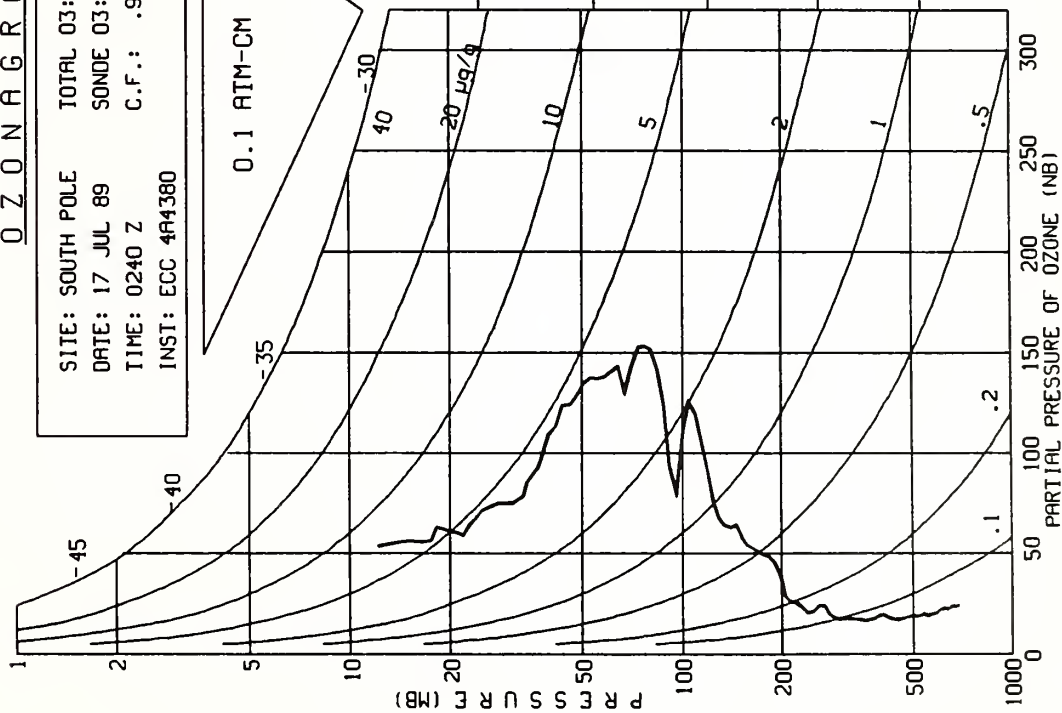
SITE: SOUTH POLE
 DATE: 17 JUL 89
 TIME: 0240 Z
 INST: ECC 4A4380

TOTAL 03: 256.

SONDE 03: 270.

C.F.: .947

0.1 ATM-CM



STATION: SOUTH POLE LAUNCH DATE: 17 JUL 89 240 Z ECC SONDE: 4A4380
 SURFACE CONDITIONS: PRESSURE 688.5 MB, TEMPERATURE -55.9 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 78.3 ORD; TBOX 25.5 C AT 71.1 ORD;
 O3 ORD ZERO 36.6, BKGND 37.2, CAL 71.9; O3 BKGND 0.089 MICROAMP; FLOW RATE 27.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 256.; SONDE TOTAL O3 270.; C.F. .947

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	688.5	2835.	24.1	.035	64.0	.0000	-55.9			241.7		
1	673.0	2986.	23.7	.035	58.1	.0004	-37.8	-42.5	62.3	263.6	33.3	280.
2	656.0	3164.	23.7	.036	57.0	.0009	-33.7	-38.4	63.8	270.1	33.3	280.
3	639.0	3348.	22.4	.035	53.7	.0014	-33.2	-37.0	69.9	272.7	11.9	258.
4	622.0	3538.	22.6	.036	54.6	.0019	-33.2	-35.3	83.1	274.8	6.3	258.
5	605.0	3733.	22.2	.037	53.4	.0024	-33.2	-34.9	86.5	277.0	6.1	260.
6	587.0	3944.	20.5	.035	49.6	.0029	-34.7	-37.3	78.7	277.7	7.2	252.
7	570.0	4149.	20.0	.035	48.9	.0033	-36.5	-40.4	68.0	277.9	6.9	222.
8	555.0	4333.	19.1	.034	46.8	.0037	-37.6	-43.0	58.0	278.8	6.1	201.
9	539.0	4534.	20.0	.037	49.3	.0042	-39.1	-44.2	59.7	279.3	4.0	217.
10	523.0	4740.	18.9	.036	47.0	.0047	-40.5			280.0	5.0	219.
11	510.0	4911.	18.8	.037	47.1	.0050	-41.7			280.6	7.2	206.
12	495.0	5113.	18.9	.038	47.5	.0055	-43.5			280.7	7.6	190.
13	480.0	5320.	18.5	.038	46.8	.0059	-44.7			281.8	9.9	185.
14	466.0	5517.	17.6	.038	44.8	.0063	-46.2			282.3	10.9	198.
15	450.0	5748.	17.2	.038	44.2	.0068	-47.9			283.0	10.7	201.
16	437.0	5941.	17.3	.040	44.7	.0072	-49.7			283.1	11.4	194.
17	421.0	6184.	18.2	.043	47.3	.0077	-51.4			283.9	13.1	186.
18	407.0	6403.	19.5	.048	51.0	.0082	-53.0			284.6	13.6	179.
19	393.0	6628.	19.0	.048	50.2	.0087	-54.7			285.3	11.0	181.
20	381.0	6826.	17.6	.046	46.8	.0092	-56.2			285.9	9.8	180.
21	370.0	7011.	17.1	.046	46.0	.0096	-57.7			286.2	12.5	170.
22	358.0	7219.	16.7	.047	45.0	.0100	-59.0			287.2	15.7	166.
23	345.0	7450.	17.1	.050	46.5	.0105	-60.7			287.9	17.2	169.
24	333.0	7669.	17.5	.053	48.0	.0110	-62.5			288.4	17.5	175.
25	321.0	7894.	17.6	.055	48.8	.0115	-64.7			288.4	18.1	179.
26	310.0	8106.	17.6	.057	49.3	.0120	-66.4			289.0	17.0	183.
27	300.0	8304.	17.1	.057	48.2	.0124	-67.7			289.8	13.5	192.
28	290.0	8508.	18.0	.062	50.9	.0129	-69.0			290.8	9.8	202.
29	280.0	8717.	19.8	.071	56.2	.0134	-70.1			292.1	6.9	207.
30	270.0	8933.	24.2	.089	68.9	.0140	-70.4			294.7	7.6	191.
31	260.0	9156.	24.2	.093	69.2	.0147	-71.8			295.9	8.8	190.
32	250.0	9387.	21.1	.084	61.0	.0154	-73.4			296.8	7.1	204.
33	240.0	9625.	20.6	.086	60.0	.0161	-74.8			298.3	4.2	217.
34	230.0	9871.	23.7	.103	69.5	.0168	-76.3			299.6	2.8	247.
35	221.0	10101.	25.9	.117	75.9	.0175	-76.3			303.0	3.6	271.
36	213.0	10313.	26.2	.123	77.5	.0183	-77.4			304.5	5.5	281.
37	206.0	10505.	28.3	.137	83.8	.0190	-77.9			306.6	6.1	285.
38	198.0	10731.	39.7	.200	117.1	.0200	-77.4			310.9	5.6	310.
39	190.8	10943.	45.5	.238	134.4	.0211	-77.9			313.4	8.4	332.
40	183.5	11166.	48.5	.264	144.7	.0225	-79.6			314.2	6.8	323.
41	176.2	11395.	49.5	.281	148.4	.0241	-80.5			316.4	5.8	302.
42	170.0	11598.	50.9	.299	152.2	.0255	-80.3			320.0	7.6	300.
43	163.8	11807.	52.6	.321	158.4	.0269	-81.3			321.6	5.5	293.
44	157.4	12031.	54.2	.344	162.9	.0286	-81.3			325.3	4.0	318.
45	151.3	12253.	58.1	.384	175.0	.0303	-81.7			328.4	5.8	334.
46	145.4	12475.	64.3	.442	194.5	.0321	-82.3			331.2	5.0	333.
47	139.4	12711.	63.0	.452	190.6	.0342	-82.3			335.2	4.9	326.
48	133.6	12948.	64.0	.479	194.2	.0363	-82.8			338.3	5.4	306.
49	128.6	13161.	68.1	.530	206.6	.0383	-82.8			342.0	4.5	293.

STATION: SOUTH POLE			LAUNCH DATE: 17 JUL 89				240 Z	ECC	SONDE: 4A4380			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	123.8	13373.	75.7	.611	230.1	.0404	-83.2			345.1	3.4	312.
51	118.9	13597.	92.0	.773	281.2	.0428	-84.3			347.0	3.2	310.
52	114.0	13829.	106.1	.931	325.7	.0460	-85.1			349.7	4.0	335.
53	109.4	14056.	119.2	1.090	366.6	.0495	-85.3			353.4	7.7	5.
54	104.6	14301.	125.5	1.200	389.1	.0537	-87.0			354.8	9.9	358.
55	100.0	14547.	108.7	1.087	337.6	.0581	-87.2			359.0	10.2	337.
56	96.0	14768.	80.0	.834	249.8	.0613	-88.1			361.5	8.2	330.
57	91.6	15023.	93.5	1.021	291.9	.0644	-88.3			366.0	6.9	331.
58	87.9	15246.	123.0	1.400	384.1	.0676	-88.3			370.3	7.6	326.
59	84.1	15484.	141.2	1.679	443.8	.0720	-89.4			372.7	5.9	319.
60	80.6	15713.	151.4	1.879	474.8	.0767	-89.0			378.2	7.5	321.
61	77.0	15960.	153.1	1.988	479.1	.0822	-88.7			383.7	7.6	326.
62	74.0	16174.	152.8	2.064	480.1	.0869	-89.4			386.6	4.0	303.
63	70.5	16435.	143.4	2.034	450.6	.0926	-89.4			392.0	4.7	305.
64	67.3	16684.	130.0	1.932	412.4	.0976	-91.1			393.6	5.0	330.
65	64.2	16936.	143.1	2.229	452.7	.1026	-90.6			400.0	4.0	15.
66	61.2	17191.	140.6	2.298	445.9	.1079	-91.1			404.5	4.8	26.
67	58.6	17422.	137.9	2.353	439.0	.1127	-91.8			407.9	5.2	2.
68	55.6	17701.	137.0	2.465	436.3	.1183	-91.8			414.0	5.9	1.
69	53.1	17945.	137.4	2.588	441.3	.1232	-93.4			415.9	7.4	346.
70	50.6	18199.	134.6	2.660	432.7	.1284	-93.6			421.1	8.3	330.
71	48.1	18465.	128.3	2.668	411.5	.1336	-93.1			428.5	6.7	336.
72	46.0	18701.	124.2	2.699	398.1	.1381	-93.1			434.0	5.4	333.
73	43.6	18983.	123.7	2.837	396.8	.1433	-93.1			440.7	3.0	327.
74	41.6	19230.	113.3	2.723	366.1	.1478	-94.5			443.3	1.7	8.
75	39.5	19501.	108.9	2.757	352.0	.1523	-94.5			449.9	5.4	359.
76	37.4	19789.	96.4	2.578	307.7	.1569	-92.3			462.4	8.2	355.
77	36.8	19874.	92.8	2.522	298.5	.1581	-93.6			461.2	7.9	349.
78	34.0	20290.	85.1	2.504	274.4	.1637	-93.9			471.0	7.9	348.
79	33.2	20415.	78.6	2.368	253.7	.1653	-94.2			473.5	8.7	338.
80	30.8	20810.	75.0	2.435	239.6	.1699	-92.3			488.8	10.1	318.
81	29.1	21111.	75.0	2.578	239.7	.1733	-92.6			496.1	9.5	294.
82	27.8	21353.	75.0	2.698	239.6	.1760	-92.3			503.3	4.3	280.
83	26.3	21646.	73.2	2.784	234.6	.1792	-93.1			509.1	1.3	77.
84	25.0	21914.	71.5	2.860	227.5	.1821	-91.8			520.2	3.4	65.
85	24.0	22131.	68.0	2.833	216.6	.1843	-91.8			526.4	6.8	29.
86	22.9	22379.	64.1	2.800	205.6	.1868	-93.1			529.7	6.1	343.
87	21.9	22615.	59.0	2.694	189.1	.1890	-93.1			536.5	5.0	295.
88	21.0	22837.	60.3	2.873	192.0	.1909	-91.8			546.8	5.2	356.
89	20.0	23097.	61.0	3.050	193.1	.1933	-90.8			557.5	4.1	346.
90	19.0	23370.	62.2	3.275	197.4	.1957	-91.1			565.0	4.1	298.
91	18.1	23630.	63.0	3.480	198.4	.1981	-89.9			576.6	2.2	330.
92	17.5	23810.	56.4	3.220	178.1	.1997	-90.6			580.0	.8	56.
93	16.8	24029.	55.9	3.326	176.8	.2015	-90.6			586.8	3.5	78.
94	16.0	24290.	55.9	3.493	176.5	.2037	-90.4			595.8	4.8	57.
95	15.0	24636.	56.3	3.751	176.6	.2065	-89.2			610.7	6.2	353.
96	14.3	24895.	56.0	3.914	174.3	.2086	-87.6			624.4	9.6	323.
97	13.6	25167.	55.2	4.060	172.7	.2108	-88.5			630.4	9.4	301.
98	13.0	25412.	54.8	4.218	170.3	.2128	-87.2			643.1	6.9	260.
99	12.1	25803.	53.6	4.430	165.9	.2158	-86.6			658.7	6.9	260.

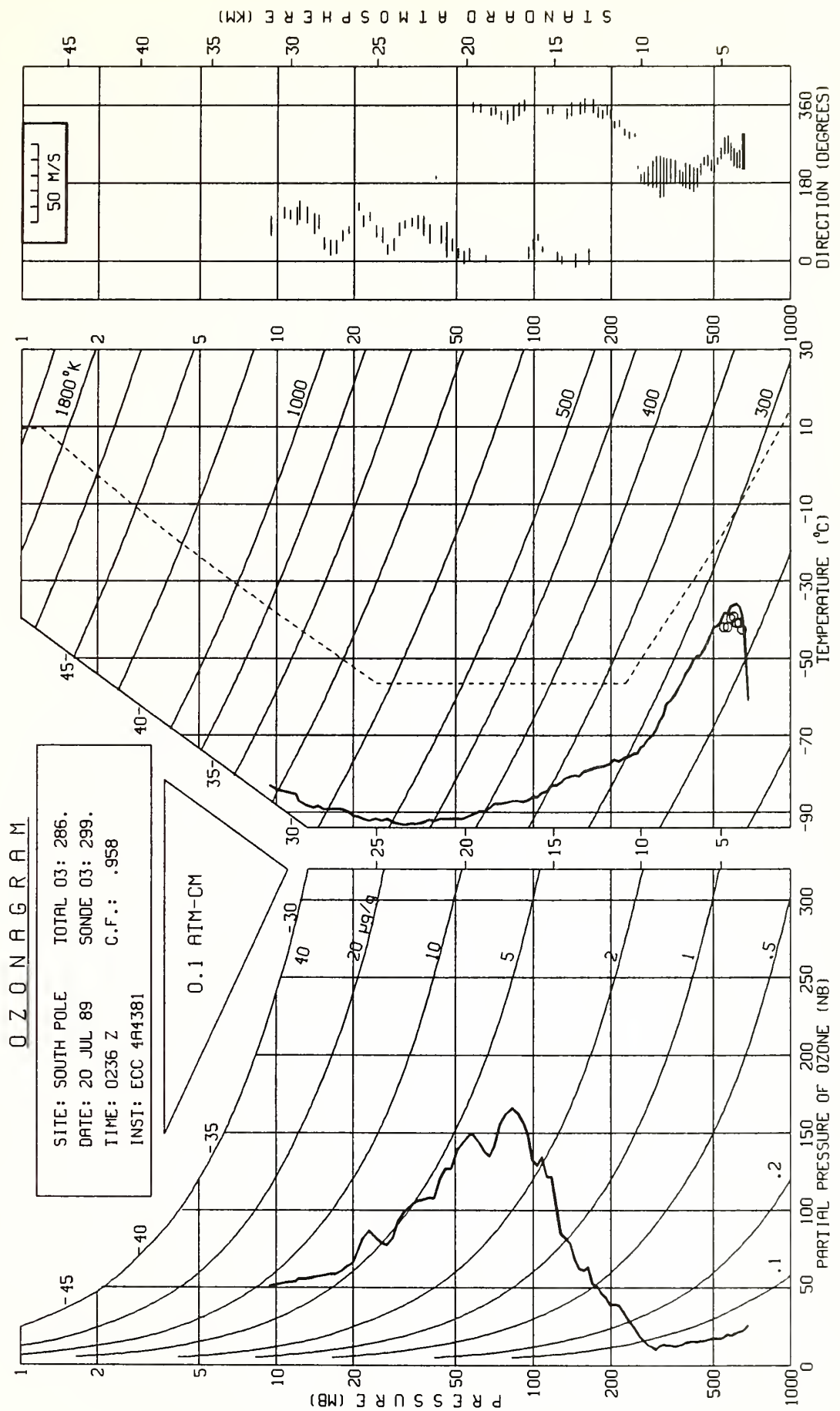
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
21.1	18.4	44.7	120.2	115.9	65.2	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110117078903	00256	99	.947	ECC	TOTAL O3 FROM SONDE DATA 270
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110217078903	689	24-56		500	19-43195 7 300 17-68192 14 200 37-78304 6
1110317078903	150	59-82334	6	100109-87337	10 70141-90309 5 50133-93331 8
1110417078903	30	75-92307	1020.0	61-91346	4 673 24-38280 33 656 24-34280 33
1110517078903	605	22-33260	6	230 24-76247	3 129 68-83293 5 109119-85 5 8
1110617078903	105125-87358	10	96	80-88330	8 92 93-88331 7 88123-88326 8
1110717078903	84141-89319	6	81151-89321	8	74153-89303 4 67130-91330 5
1110817078903	64143-91	15	4	40109-95359	5 37 96-92355 8 33 79-94338 9
1110917078903	21.9	59-93295	512.1	54-87260	7



STATION: SOUTH POLE LAUNCH DATE: 20 JUL 89 236 Z ECC SONDE: 4A4381
 SURFACE CONDITIONS: PRESSURE 683.6 MB, TEMPERATURE -61.2 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 78.3 ORD; TBOX 24.0 C AT 70.8 ORD;
 O3 ORD ZERO 29.8, BKGND 30.5, CAL 69.8; O3 BKGND 0.092 MICROAMP; FLOW RATE 26.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 286.; SONDE TOTAL O3 299.; C.F. .958

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	683.6	2835.	25.7	.038	69.8	.0000	-61.2			236.3		
1	660.0	3062.	23.1	.035	58.2	.0007	-43.9			258.2	23.0	253.
2	647.0	3197.	22.1	.034	54.7	.0011	-39.1	-42.8	69.1	265.1	23.0	253.
3	631.0	3370.	21.7	.034	53.1	.0015	-36.7	-41.0	65.5	269.7	11.4	236.
4	616.0	3536.	20.9	.034	50.8	.0019	-36.2	-41.1	61.7	272.1	9.9	233.
5	600.0	3719.	20.0	.033	48.9	.0023	-36.4	-39.4	74.8	274.0	11.2	239.
6	585.0	3894.	19.4	.033	47.6	.0027	-36.8	-39.9	75.0	275.4	11.3	252.
7	569.0	4086.	20.0	.035	49.2	.0031	-38.6	-42.1	71.3	275.5	11.7	268.
8	550.0	4319.	18.3	.033	44.9	.0037	-38.5	-42.1	70.2	278.4	10.6	266.
9	534.0	4521.	17.4	.033	43.4	.0041	-40.6			278.2	7.2	248.
10	518.0	4728.	17.4	.034	43.5	.0045	-41.8			279.2	4.6	231.
11	501.0	4954.	17.4	.035	43.6	.0049	-42.1			281.5	5.4	213.
12	488.0	5131.	17.3	.036	43.8	.0053	-44.0			281.3	7.2	220.
13	474.0	5325.	16.6	.035	42.2	.0057	-46.2			281.0	7.0	232.
14	460.0	5524.	15.7	.034	40.4	.0061	-48.1			281.0	5.2	231.
15	445.0	5742.	15.7	.035	40.7	.0065	-49.6			281.8	7.3	212.
16	431.0	5951.	15.2	.035	39.4	.0069	-49.6			284.3	12.8	192.
17	419.0	6135.	15.6	.037	40.6	.0072	-50.7			285.2	15.6	188.
18	404.0	6372.	15.2	.038	39.8	.0076	-52.9			285.3	15.7	195.
19	391.0	6582.	14.7	.038	39.0	.0080	-54.2			286.4	16.2	197.
20	380.0	6764.	13.4	.035	35.5	.0083	-56.1			286.2	9.2	189.
21	369.0	6950.	12.9	.035	34.6	.0086	-57.7			286.5	7.6	196.
22	355.0	7193.	12.1	.034	32.6	.0090	-59.7			286.9	13.3	208.
23	342.0	7426.	12.9	.038	35.1	.0094	-61.3			287.8	14.4	209.
24	330.0	7647.	12.9	.039	35.3	.0097	-61.9			289.9	16.3	207.
25	321.0	7817.	13.4	.042	37.2	.0100	-65.1			287.9	25.1	193.
26	310.0	8029.	12.4	.040	34.9	.0104	-66.6			288.6	26.5	194.
27	300.0	8226.	10.2	.034	29.0	.0107	-68.9			288.1	20.0	205.
28	290.0	8428.	12.0	.041	34.2	.0110	-70.4			288.8	17.2	200.
29	280.0	8636.	12.9	.046	37.1	.0113	-71.2			290.5	12.6	195.
30	270.0	8850.	15.7	.058	45.2	.0117	-72.8			291.2	7.9	191.
31	262.0	9026.	17.9	.068	51.6	.0121	-73.3			293.1	4.1	192.
32	255.0	9184.	21.0	.082	61.0	.0125	-74.8			293.1	1.7	216.
33	247.0	9369.	24.5	.099	71.3	.0130	-74.9			295.6	2.3	291.
34	235.0	9658.	28.9	.123	84.6	.0140	-75.7			298.7	4.0	290.
35	225.0	9909.	34.2	.152	100.1	.0150	-76.0			301.9	4.2	298.
36	215.0	10171.	38.9	.181	114.5	.0163	-77.0			304.4	4.2	318.
37	206.0	10417.	39.3	.191	115.4	.0176	-76.6			308.6	4.4	315.
38	198.6	10627.	39.3	.198	116.1	.0187	-77.6			310.4	5.3	339.
39	191.8	10827.	43.5	.227	128.4	.0198	-77.9			312.9	6.3	349.
40	184.3	11055.	46.3	.251	136.8	.0212	-78.3			316.0	5.7	339.
41	177.0	11285.	51.3	.290	152.2	.0227	-78.4			319.4	6.7	344.
42	169.8	11522.	52.6	.310	156.1	.0244	-78.8			322.7	8.3	359.
43	163.4	11740.	63.3	.387	188.4	.0260	-79.3			325.4	10.0	9.
44	157.1	11963.	61.2	.389	182.4	.0280	-79.6			328.5	8.9	360.
45	151.0	12187.	62.4	.413	187.3	.0299	-80.8			330.1	7.8	353.
46	145.0	12416.	69.1	.477	207.5	.0319	-80.6			334.3	9.1	1.
47	139.5	12634.	78.7	.564	236.1	.0340	-80.8			337.7	9.0	352.
48	134.0	12860.	82.1	.612	247.0	.0365	-81.3			340.6	6.5	341.
49	128.1	13112.	84.8	.662	256.7	.0394	-82.4			343.1	5.0	2.

STATION: SOUTH POLE				LAUNCH DATE: 20 JUL 89				236 Z	ECC SONDE: 4A4381				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	123.1	13334.	102.5	.832	311.3	.0422	-83.2			345.6	6.3	9.	
51	118.0	13570.	121.7	1.031	370.0	.0458	-83.2			349.8	5.3	351.	
52	112.9	13815.	121.6	1.077	372.6	.0500	-84.7			351.4	3.6	347.	
53	108.0	14059.	133.9	1.240	411.2	.0543	-85.1			355.1	3.2	27.	
54	103.7	14282.	128.9	1.243	397.9	.0585	-86.2			357.3	4.1	54.	
55	99.4	14514.	132.4	1.332	409.0	.0628	-86.2			361.7	6.1	38.	
56	95.3	14744.	149.2	1.565	462.7	.0673	-87.0			364.4	7.6	19.	
57	91.5	14966.	156.8	1.713	487.3	.0721	-87.4			367.8	7.5	360.	
58	87.1	15234.	162.7	1.868	505.2	.0782	-87.2			373.5	8.4	351.	
59	82.9	15504.	165.9	2.001	514.9	.0846	-87.2			378.8	9.7	342.	
60	78.5	15800.	162.2	2.066	504.6	.0916	-87.6			383.8	9.0	333.	
61	74.3	16099.	155.3	2.090	483.8	.0985	-87.9			389.5	5.4	337.	
62	70.8	16361.	141.2	1.995	440.1	.1043	-87.9			394.9	4.3	348.	
63	68.0	16579.	134.7	1.981	422.3	.1086	-89.0			397.1	5.0	346.	
64	65.0	16822.	137.3	2.113	432.5	.1134	-89.9			400.2	4.5	5.	
65	62.1	17067.	143.2	2.305	451.0	.1184	-89.9			405.4	5.1	354.	
66	58.1	17423.	149.8	2.578	474.2	.1260	-90.8			411.1	6.4	356.	
67	56.2	17601.	147.8	2.631	468.9	.1298	-91.1			414.5	8.6	14.	
68	53.4	17873.	143.3	2.684	456.3	.1357	-91.8			418.8	8.2	8.	
69	50.9	18127.	138.8	2.728	442.0	.1410	-91.8			424.6	6.1	18.	
70	48.1	18428.	126.8	2.636	403.8	.1470	-91.8			431.5	8.2	37.	
71	45.8	18688.	126.8	2.768	403.7	.1519	-91.8			437.6	22.6	49.	
72	43.6	18950.	120.1	2.754	382.5	.1568	-91.8			443.8	11.2	61.	
73	41.5	19211.	107.6	2.594	343.6	.1613	-92.3			448.9	1.5	193.	
74	39.4	19487.	108.2	2.746	344.9	.1657	-92.1			456.2	12.1	62.	
75	37.4	19762.	106.8	2.855	341.9	.1701	-92.8			461.1	12.6	81.	
76	35.4	20052.	106.0	2.994	339.9	.1747	-93.1			467.7	8.7	90.	
77	33.5	20343.	102.7	3.067	329.4	.1793	-93.1			475.1	5.1	90.	
78	31.5	20668.	98.6	3.131	316.7	.1842	-93.4			482.8	4.7	84.	
79	30.0	20925.	93.2	3.106	298.9	.1880	-93.1			490.3	8.4	73.	
80	28.6	21177.	82.6	2.889	264.7	.1913	-92.8			497.8	8.4	38.	
81	27.0	21482.	77.6	2.873	247.0	.1951	-91.8			508.9	6.1	26.	
82	25.8	21723.	79.0	3.062	252.2	.1978	-92.3			514.1	9.6	60.	
83	24.3	22041.	82.7	3.405	263.4	.2016	-91.8			524.5	7.7	68.	
84	23.0	22332.	86.5	3.759	276.0	.2052	-92.3			531.3	5.6	103.	
85	21.7	22641.	81.4	3.751	259.2	.2091	-91.8			541.7	6.9	92.	
86	20.8	22866.	73.8	3.549	234.4	.2117	-91.3			549.8	4.9	126.	
87	19.9	23102.	66.1	3.320	209.5	.2142	-91.1			557.6	2.4	100.	
88	19.0	23350.	64.2	3.377	202.0	.2166	-89.9			568.7	4.3	71.	
89	18.0	23640.	60.9	3.383	191.3	.2193	-89.4			579.0	6.8	58.	
90	17.0	23948.	58.9	3.464	185.0	.2220	-89.4			588.6	8.7	32.	
91	16.1	24241.	58.9	3.658	185.0	.2245	-89.4			597.8	9.6	31.	
92	15.2	24550.	58.0	3.818	182.3	.2271	-89.4			607.7	7.5	40.	
93	14.5	24804.	57.4	3.956	179.4	.2292	-88.5			619.0	9.3	91.	
94	13.9	25033.	56.7	4.078	177.8	.2311	-89.0			624.9	13.4	87.	
95	13.0	25395.	55.7	4.287	174.0	.2341	-88.3			639.3	10.5	106.	
96	12.2	25739.	55.7	4.568	173.1	.2368	-87.2			654.9	12.2	117.	
97	11.9	25876.	54.1	4.546	166.6	.2379	-85.5			665.5	11.1	104.	
98	11.2	26209.	53.6	4.788	164.7	.2405	-85.1			678.6	6.0	107.	
99	10.6	26513.	53.0	4.996	162.3	.2428	-84.7			690.8	7.0	111.	
100	10.0	26835.	52.2	5.219	159.5	.2452	-84.3			703.8	12.8	81.	
101	9.4	27178.	50.9	5.419	154.8	.2477	-83.2			720.8	12.8	81.	

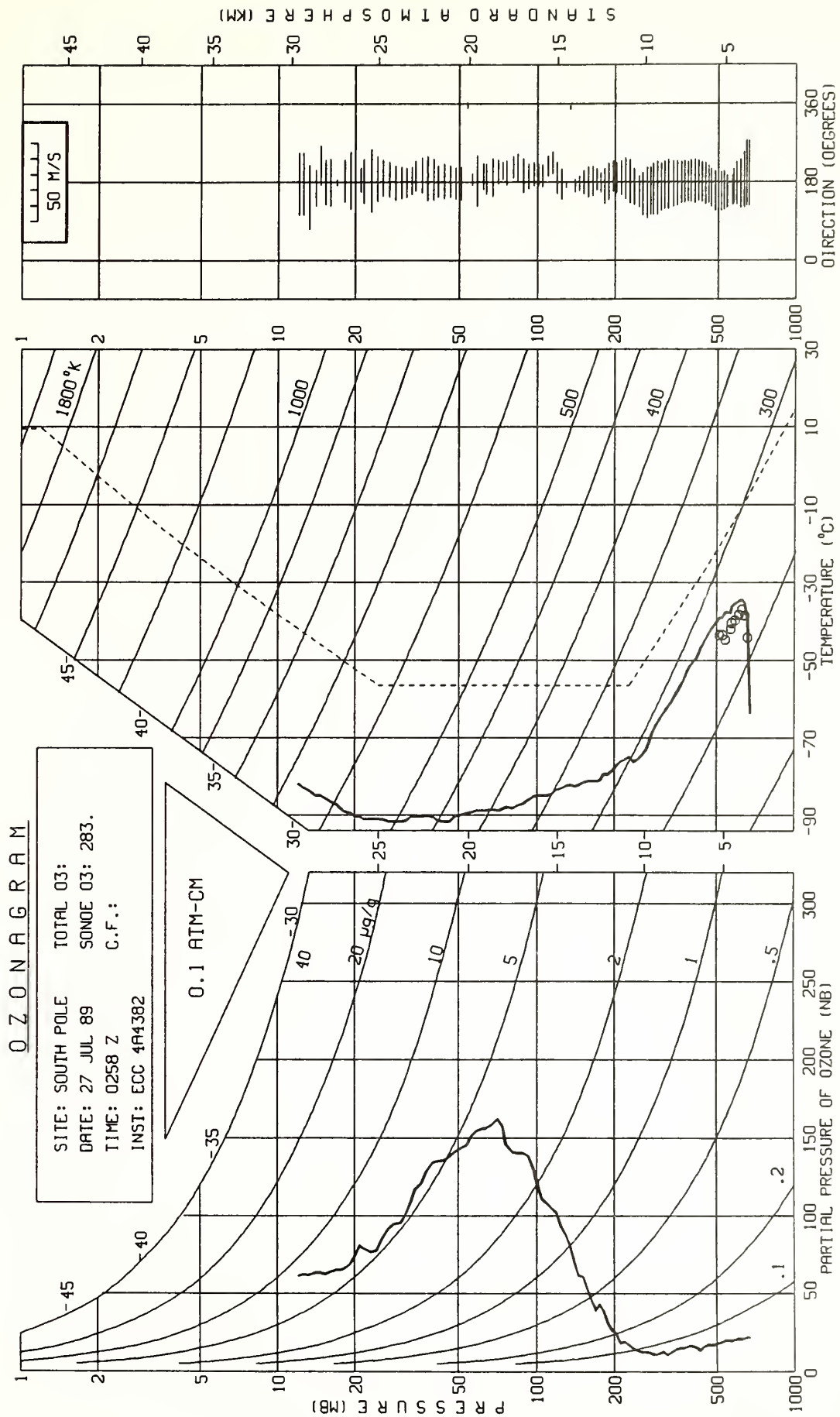
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
20.2	14.3	51.8	140.0	122.7	74.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110120078903	00286	99	.958	ECC	TOTAL O3 FROM SONDE DATA 299
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110220078903	684	26-61		500	17-42214 6 300 10-69205 20 200 39-77334 5
1110320078903	150	64-81295	8	100132-86 40	6 70139-88347 4 50135-92 24 7
1110420078903	30	93-93 73	820.0	67-91103	310.0 52-84 81 13 660 23-44253 23
1110520078903	647	22-39253	23	631 22-37236	11 585 19-37252 11 460 16-48231 5
1110620078903	330	13-62207	16	255 21-75216	2 170 53-79359 8 163 63-79 9 10
1110720078903	128	85-82 2	5	118122-83351	5 113122-85347 4 108134-85 27 3
1110820078903		92157-87360	8	83166-87342	10 74155-88337 5 68135-89346 5
1110920078903		58150-91356	6	42108-92193	227.0 78-92 26 623.0 86-92103 6
1111020078903		9.4 51-83	81	13	



STATION: SOUTH POLE LAUNCH DATE: 27 JUL 89 258 Z ECC SONDE: 4A4382
 SURFACE CONDITIONS: PRESSURE 676.2 MB, TEMPERATURE -63.8 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 78.3 ORD; TBOX 21.0 C AT 69.9 ORD;
 O3 ORD ZERO 33.5, BKGND 34.0, CAL 70.7; O3 BKGND 0.071 MICROAMP; FLOW RATE 26.5 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 283.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	676.2	2835.	21.6	.032	59.7	.0000	-63.8			234.1		
1	660.0	2992.	22.2	.034	54.8	.0004	-39.7	-44.4	61.7	262.9	41.8	201.
2	643.0	3172.	21.4	.033	52.0	.0009	-35.6	-38.7	75.1	269.5	41.8	201.
3	629.0	3326.	21.0	.033	50.7	.0012	-34.6	-37.1	79.1	272.4	35.7	185.
4	609.9	3541.	21.1	.035	51.0	.0018	-35.0	-38.5	71.7	274.3	30.9	177.
5	590.0	3772.	20.6	.035	50.0	.0023	-35.6	-39.9	65.9	276.2	27.3	177.
6	572.0	3987.	19.7	.034	48.0	.0028	-36.5	-40.6	66.5	277.6	21.7	171.
7	569.0	4024.	20.1	.035	49.3	.0029	-37.9	-42.2	65.4	276.4	18.7	161.
8	541.0	4372.	20.1	.037	49.4	.0037	-37.8	-44.9	48.2	280.5	20.4	158.
9	528.0	4539.	19.2	.036	47.4	.0040	-39.2	-43.7	63.6	280.8	24.7	161.
10	513.0	4736.	18.4	.036	45.3	.0045	-39.3	-43.7	64.5	283.0	24.6	159.
11	500.0	4912.	17.9	.036	44.5	.0048	-40.4			283.8	22.6	157.
12	486.0	5105.	17.1	.035	42.6	.0052	-41.3			284.9	25.2	160.
13	471.0	5317.	17.1	.036	42.9	.0056	-42.7			285.8	24.6	167.
14	459.0	5491.	17.2	.037	43.2	.0060	-44.0			286.3	24.4	175.
15	445.0	5698.	15.9	.036	40.3	.0064	-45.7			286.7	26.4	177.
16	432.0	5895.	13.6	.031	34.7	.0067	-47.2			287.2	25.4	181.
17	419.0	6096.	15.3	.037	39.6	.0071	-49.4			286.9	25.8	183.
18	405.0	6318.	16.2	.040	41.9	.0075	-50.6			288.1	27.6	182.
19	392.0	6530.	16.6	.042	43.4	.0079	-51.9			289.2	26.6	183.
20	381.0	6714.	15.7	.041	41.3	.0083	-53.3			289.7	25.6	181.
21	370.0	6902.	14.9	.040	39.4	.0086	-55.4			289.4	26.5	180.
22	360.0	7076.	14.9	.041	39.7	.0089	-57.0			289.4	26.9	179.
23	348.0	7290.	14.4	.041	38.8	.0093	-58.7			290.0	28.4	177.
24	335.0	7528.	12.7	.038	34.5	.0097	-60.7			290.4	29.2	176.
25	321.0	7792.	10.9	.034	29.9	.0101	-62.5			291.4	31.4	175.
26	311.0	7987.	12.7	.041	35.0	.0104	-63.8			292.3	30.0	173.
27	301.0	8187.	11.8	.039	32.9	.0107	-65.2			293.1	30.3	169.
28	290.0	8413.	11.0	.038	30.7	.0111	-67.0			293.6	34.2	166.
29	281.0	8602.	11.4	.041	32.1	.0114	-69.0			293.4	32.9	164.
30	274.0	8752.	12.2	.045	34.7	.0116	-71.1			292.5	30.7	160.
31	266.0	8926.	12.6	.047	36.3	.0119	-73.3			291.8	32.3	155.
32	256.0	9150.	12.6	.049	36.7	.0122	-74.8			292.8	27.1	153.
33	247.0	9357.	13.5	.055	39.4	.0126	-75.7			294.5	19.8	158.
34	237.0	9596.	14.7	.062	43.3	.0130	-76.3			297.0	23.1	170.
35	229.0	9795.	16.9	.074	49.2	.0134	-75.1			301.8	27.9	181.
36	220.0	10027.	19.3	.088	56.6	.0140	-75.8			304.1	26.6	188.
37	211.0	10268.	18.5	.088	54.2	.0146	-76.3			307.0	21.8	189.
38	203.0	10490.	24.7	.122	72.8	.0152	-77.6			308.4	19.6	190.
39	196.2	10685.	26.7	.136	79.2	.0159	-78.8			309.6	19.5	193.
40	189.0	10897.	31.5	.167	94.0	.0167	-79.6			311.6	23.8	181.
41	182.2	11105.	38.8	.213	115.6	.0177	-79.6			314.8	22.8	171.
42	176.0	11300.	43.1	.245	129.7	.0187	-81.2			315.4	12.8	179.
43	169.9	11499.	39.6	.233	119.2	.0199	-81.3			318.3	13.8	186.
44	163.6	11711.	45.6	.279	137.4	.0211	-81.3			321.7	19.1	182.
45	157.6	11921.	52.7	.334	158.7	.0225	-81.3			325.2	19.3	180.
46	151.5	12142.	61.0	.403	183.9	.0242	-81.7			328.3	15.2	179.
47	145.2	12380.	61.7	.425	186.7	.0262	-82.3			331.3	9.7	177.
48	139.6	12600.	70.7	.506	214.3	.0282	-82.8			334.1	8.4	172.
49	134.4	12812.	81.1	.603	245.4	.0304	-82.4			338.4	2.0	352.

STATION: SOUTH POLE LAUNCH DATE: 27 JUL 89 258 Z ECC SONDE: 4A4382

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	129.2	13032.	88.0	.681	266.6	.0330	-82.6			341.9	3.6	172.
51	124.0	13261.	93.4	.753	283.8	.0358	-83.2			344.9	19.2	175.
52	119.0	13490.	102.2	.859	311.3	.0388	-83.6			348.3	20.0	189.
53	114.2	13718.	104.7	.917	320.7	.0421	-84.7			350.2	14.0	224.
54	109.5	13949.	108.0	.986	331.7	.0456	-85.1			353.7	13.2	217.
55	104.6	14201.	110.9	1.060	340.7	.0495	-85.1			358.4	14.4	194.
56	100.8	14405.	120.2	1.192	369.1	.0527	-85.1			362.2	13.0	197.
57	96.9	14622.	130.7	1.349	401.8	.0565	-85.3			365.9	15.2	198.
58	92.5	14877.	138.4	1.496	427.4	.0614	-86.2			369.2	16.2	193.
59	88.3	15131.	140.3	1.589	435.5	.0664	-87.2			372.0	21.8	195.
60	84.3	15383.	140.3	1.664	436.7	.0715	-87.6			376.1	17.4	213.
61	80.9	15607.	140.7	1.739	439.3	.0760	-88.3			379.2	14.0	214.
62	76.2	15931.	146.2	1.919	456.1	.0826	-88.1			386.2	15.5	201.
63	73.9	16097.	157.5	2.131	492.5	.0862	-88.5			388.7	11.1	206.
64	71.0	16313.	161.8	2.279	507.2	.0911	-89.0			392.2	15.3	203.
65	67.5	16586.	158.5	2.348	496.2	.0975	-88.7			398.4	24.4	190.
66	63.5	16916.	156.0	2.457	488.9	.1051	-89.0			404.9	19.0	187.
67	61.8	17062.	155.8	2.521	488.3	.1084	-89.0			408.0	16.6	193.
68	58.9	17322.	154.3	2.620	483.8	.1143	-89.0			413.7	32.5	183.
69	56.2	17574.	151.2	2.690	475.0	.1199	-89.4			418.2	7.7	186.
70	53.7	17819.	145.2	2.704	456.9	.1253	-89.7			423.2	3.8	357.
71	51.0	18096.	143.2	2.808	451.8	.1312	-90.1			428.4	21.1	177.
72	48.5	18365.	141.0	2.907	445.5	.1367	-90.4			434.0	20.4	177.
73	46.2	18624.	137.8	2.983	438.8	.1420	-91.8			436.5	20.5	181.
74	43.9	18896.	135.3	3.082	430.9	.1475	-91.8			442.9	22.1	181.
75	41.5	19194.	135.1	3.255	429.5	.1534	-91.6			450.7	19.7	181.
76	39.9	19404.	134.1	3.361	424.2	.1576	-90.6			458.3	26.1	186.
77	37.8	19693.	128.6	3.402	406.1	.1632	-90.4			466.0	28.4	188.
78	36.0	19954.	120.6	3.350	381.5	.1681	-90.6			471.9	22.5	195.
79	34.1	20244.	116.8	3.425	369.2	.1732	-90.6			479.3	19.5	194.
80	32.9	20436.	108.6	3.301	343.5	.1764	-90.6			484.2	17.9	183.
81	31.3	20702.	100.5	3.211	319.5	.1806	-91.6			488.6	19.1	178.
82	30.0	20927.	95.6	3.187	304.3	.1839	-91.8			493.8	20.1	178.
83	28.4	21218.	94.9	3.342	302.3	.1880	-91.8			501.6	21.8	178.
84	27.0	21487.	91.8	3.400	292.3	.1917	-91.8			508.9	22.5	186.
85	25.5	21791.	85.3	3.345	270.8	.1958	-91.3			518.7	23.1	189.
86	24.2	22070.	77.7	3.211	246.3	.1991	-91.1			527.3	29.3	187.
87	23.0	22341.	76.8	3.339	243.5	.2022	-91.1			535.0	40.1	183.
88	21.5	22701.	79.3	3.688	251.5	.2064	-91.1			545.4	27.9	182.
89	20.9	22852.	80.9	3.871	255.7	.2081	-90.6			551.3	15.4	185.
90	20.0	23087.	74.3	3.715	234.8	.2109	-90.4			559.0	26.2	182.
91	19.2	23306.	69.0	3.594	217.2	.2132	-89.7			567.7	36.8	184.
92	18.2	23594.	66.1	3.632	207.4	.2161	-89.2			577.9	27.2	182.
93	17.6	23775.	65.2	3.705	203.9	.2178	-88.5			585.6	.7	359.
94	16.9	23995.	65.1	3.852	202.3	.2199	-87.4			596.0	3.8	179.
95	16.0	24294.	63.9	3.994	197.7	.2226	-86.6			608.1	30.1	179.
96	15.3	24539.	62.5	4.085	192.8	.2249	-85.9			618.0	28.5	179.
97	14.6	24796.	63.5	4.349	194.8	.2272	-85.1			629.1	25.0	218.
98	14.0	25027.	63.4	4.529	194.7	.2293	-85.1			636.6	22.8	166.
99	13.2	25352.	62.1	4.705	189.3	.2322	-83.8			652.2	41.3	145.
100	12.5	25655.	62.4	4.992	189.5	.2349	-83.0			665.1	39.8	176.
101	12.0	25883.	61.4	5.117	185.6	.2368	-82.1			676.1	39.8	176.

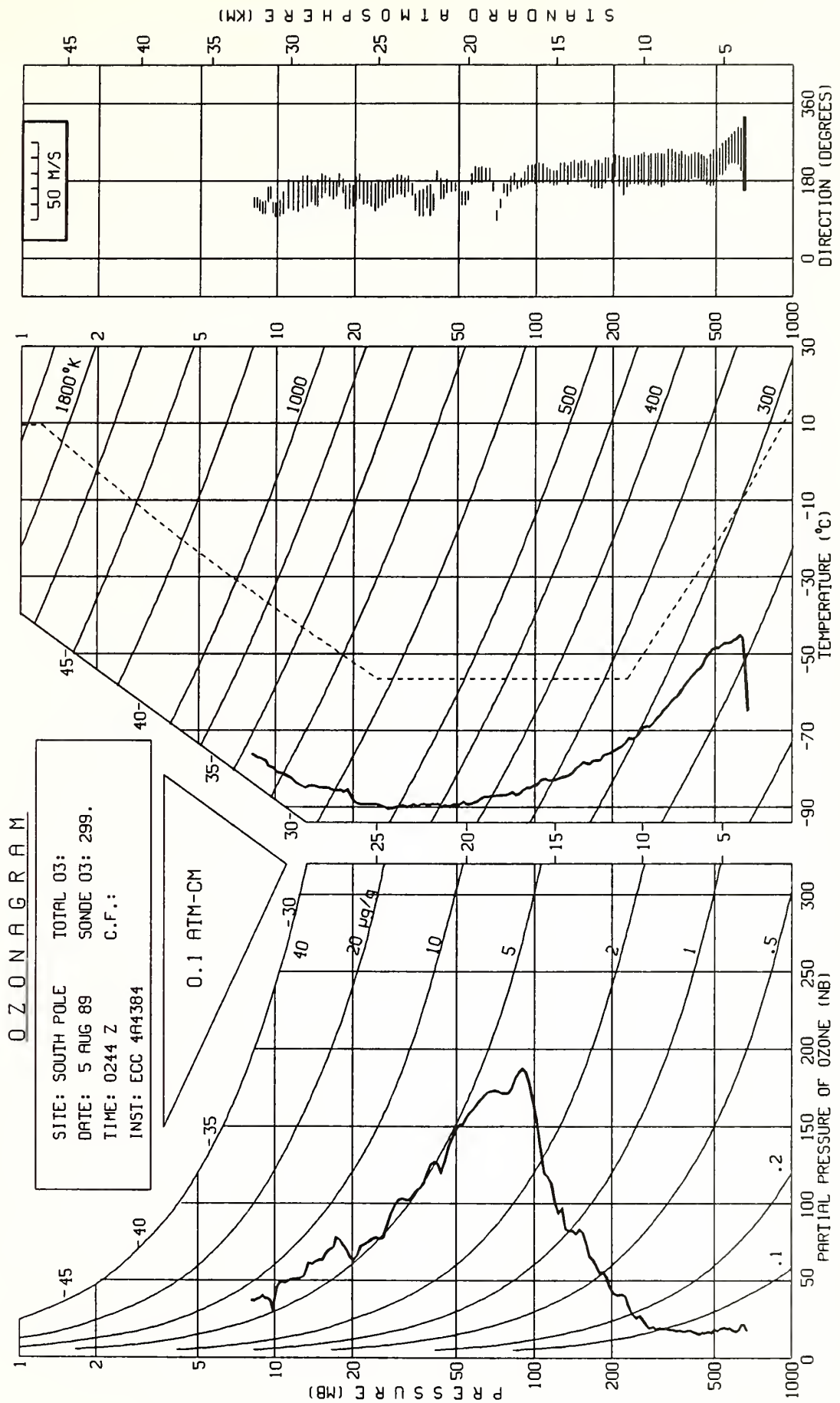
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
20.3	14.0	41.6	131.3	134.6	78.7	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX XP T CORR	COMMENTS
1110127078903	99	ECC TOTAL O3 FROM SONDE DATA 283
ISNNYYMMJJGG	PPPP P3TTTDDDDFFPPPP	P3TTTDDDDFFPPPP P3TTTDDDDFFPPPP P3TTTDDDDFF
1110227078903	676 22-64	500 18-40157 23 300 12-65169 31 200 26-78191 20
1110327078903	150 61-82179 14	100122-85197 13 70161-89199 18 50142-90177 21
1110427078903	30 96-92178 2020.0	74-90182 26 660 22-40201 42 643 21-36201 42
1110527078903	590 21-36177 27	256 13-75153 27 176 43-81179 13 170 40-81186 14
1110627078903	119102-84189 20	105111-85194 14 93138-86193 16 81141-88214 14
1110727078903	40134-91186 2624.2	78-91187 2912.0 61-82176 40



STATION: SOUTH POLE LAUNCH DATE: 5 AUG 89 244 Z ECC SONDE: 4A4384
 SURFACE CONDITIONS: PRESSURE 668.3 MB, TEMPERATURE -65.1 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 78.8 ORD; TBOX 24.0 C AT 70.5 ORD;
 O3 ORD ZERO 32.3, BKGND 32.8, CAL 67.0; O3 BKGND 0.076 MICROAMP; FLOW RATE 26.4 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 299.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	668.3	2835.	17.6	.026	48.8	.0000	-65.1			233.5		
1	651.0	3000.	21.6	.033	56.3	.0004	-52.0			250.0	47.9	243.
2	638.0	3132.	21.6	.034	54.9	.0007	-45.9			258.4	47.9	243.
3	625.0	3270.	18.3	.029	46.3	.0011	-45.4			260.5	27.7	253.
4	608.0	3453.	16.9	.028	42.9	.0014	-46.2			261.7	24.0	262.
5	591.0	3642.	17.7	.030	45.2	.0018	-46.6			263.3	20.6	258.
6	575.0	3823.	19.4	.034	49.5	.0022	-47.3			264.5	18.9	255.
7	560.0	3998.	19.0	.034	48.6	.0026	-47.4			266.4	17.4	249.
8	545.0	4178.	19.5	.036	49.8	.0030	-47.4			268.5	19.3	239.
9	530.0	4362.	19.0	.036	48.7	.0034	-48.0			270.0	20.6	231.
10	515.0	4551.	17.5	.034	44.9	.0039	-48.8			271.2	17.1	225.
11	501.0	4732.	18.5	.037	47.5	.0042	-48.6			273.6	18.4	215.
12	487.0	4919.	16.1	.033	41.5	.0046	-49.0			275.3	22.9	211.
13	473.0	5110.	17.0	.036	44.1	.0050	-50.2			276.2	20.6	205.
14	460.0	5291.	16.0	.035	41.7	.0054	-51.3			277.0	16.6	202.
15	448.0	5462.	16.5	.037	43.2	.0057	-53.0			276.9	15.4	210.
16	437.0	5622.	15.1	.035	39.7	.0060	-54.0			277.7	16.9	211.
17	426.0	5786.	16.1	.038	42.6	.0063	-54.5			279.0	16.7	216.
18	413.0	5984.	17.1	.041	45.4	.0067	-55.6			280.1	15.5	217.
19	401.0	6171.	18.0	.045	48.0	.0071	-56.5			281.3	16.2	214.
20	390.0	6347.	17.5	.045	47.0	.0075	-57.6			282.1	17.1	207.
21	378.0	6544.	17.0	.045	45.8	.0079	-58.8			283.1	17.3	210.
22	367.0	6729.	17.8	.049	48.3	.0083	-60.1			283.7	18.3	217.
23	358.0	6883.	17.4	.049	47.4	.0087	-61.2			284.3	18.5	209.
24	347.0	7077.	18.3	.053	50.1	.0091	-61.9			285.8	19.4	212.
25	336.0	7276.	18.4	.055	50.4	.0095	-62.9			287.1	21.3	216.
26	325.0	7480.	18.8	.058	51.9	.0100	-64.2			288.1	21.8	215.
27	313.0	7710.	18.8	.060	52.2	.0106	-65.2			289.8	20.2	206.
28	307.0	7827.	19.2	.063	53.6	.0109	-66.2			290.0	21.5	205.
29	297.0	8028.	18.7	.063	52.4	.0114	-67.0			291.6	20.2	208.
30	290.0	8171.	20.4	.070	57.5	.0117	-68.2			291.9	19.3	209.
31	280.0	8381.	19.4	.069	55.0	.0123	-69.3			293.3	20.0	208.
32	273.0	8532.	21.3	.078	60.2	.0127	-69.0			295.8	19.7	204.
33	263.0	8755.	25.3	.096	71.6	.0133	-69.4			298.4	20.5	209.
34	257.0	8893.	27.4	.107	78.1	.0138	-70.5			298.7	19.0	209.
35	250.0	9056.	25.7	.103	73.6	.0143	-71.7			299.4	18.6	205.
36	241.0	9272.	28.3	.117	81.4	.0151	-72.4			301.5	18.6	207.
37	232.0	9496.	34.4	.148	98.9	.0160	-72.2			305.0	17.2	203.
38	226.0	9650.	40.0	.177	115.6	.0167	-73.3			305.7	19.0	199.
39	219.0	9834.	41.1	.188	119.3	.0177	-74.3			306.9	24.4	191.
40	210.0	10078.	40.6	.193	118.3	.0190	-74.8			309.9	19.7	203.
41	203.0	10274.	41.8	.206	122.2	.0201	-75.5			311.7	13.9	216.
42	196.9	10451.	45.7	.232	134.0	.0211	-76.0			313.7	12.5	198.
43	191.0	10626.	52.2	.273	153.0	.0222	-76.3			315.9	13.4	210.
44	185.6	10791.	55.5	.299	162.9	.0234	-76.6			318.0	16.6	204.
45	179.9	10970.	54.9	.305	162.5	.0248	-77.9			318.7	16.2	192.
46	174.4	11148.	59.3	.340	175.5	.0261	-77.9			321.6	18.3	197.
47	169.0	11328.	63.7	.377	188.5	.0276	-78.1			324.2	18.4	196.
48	163.9	11502.	65.6	.400	194.9	.0291	-78.9			325.6	13.6	190.
49	158.8	11682.	74.6	.470	221.6	.0308	-78.8			328.9	12.3	199.

STATION: SOUTH POLE				LAUNCH DATE: 5 AUG 89				244 Z	ECC SONDE: 4A4384			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	154.1	11854.	81.2	.527	240.8	.0326	-78.4			332.3	11.0	209.
51	149.7	12018.	83.2	.556	247.7	.0344	-79.3			333.6	11.4	206.
52	145.0	12199.	80.2	.553	239.7	.0365	-79.9			335.5	12.3	200.
53	140.5	12377.	82.4	.586	247.8	.0385	-81.2			336.4	11.4	208.
54	136.3	12548.	82.3	.604	248.2	.0404	-81.7			338.3	11.2	204.
55	132.3	12714.	83.3	.630	251.7	.0423	-82.1			340.6	12.2	194.
56	128.2	12891.	96.9	.756	293.0	.0445	-82.3			343.3	12.1	201.
57	124.1	13072.	93.6	.754	283.8	.0469	-82.6			345.9	12.3	200.
58	120.1	13255.	101.3	.843	307.6	.0494	-83.0			348.4	9.4	188.
59	116.7	13415.	113.2	.970	343.9	.0517	-83.2			350.9	9.3	186.
60	113.0	13594.	117.1	1.036	355.8	.0545	-83.2			354.2	9.2	191.
61	109.5	13769.	119.4	1.090	362.1	.0575	-82.8			358.1	8.9	195.
62	106.0	13950.	134.4	1.268	408.0	.0606	-83.0			361.1	12.6	198.
63	102.3	14147.	153.7	1.502	469.9	.0645	-84.3			362.2	13.2	199.
64	98.7	14345.	166.8	1.690	510.5	.0688	-84.5			365.5	12.1	196.
65	95.9	14504.	177.6	1.852	545.4	.0726	-85.1			367.4	11.0	198.
66	93.0	14673.	184.8	1.987	567.5	.0768	-85.1			370.6	11.9	195.
67	90.0	14854.	187.5	2.083	577.6	.0816	-85.7			372.9	9.1	186.
68	87.2	15027.	185.0	2.122	572.5	.0862	-86.6			374.6	6.1	176.
69	84.3	15211.	181.0	2.147	561.5	.0909	-87.0			377.4	5.6	171.
70	82.0	15362.	175.0	2.134	540.3	.0948	-86.2			382.1	7.7	185.
71	79.5	15532.	171.6	2.158	531.1	.0991	-86.6			384.7	9.8	174.
72	77.0	15706.	171.4	2.226	531.4	.1033	-87.0			387.3	7.9	159.
73	74.5	15886.	171.4	2.301	531.5	.1078	-87.0			391.0	6.3	163.
74	72.3	16050.	172.7	2.389	535.6	.1118	-87.0			394.3	5.9	128.
75	70.1	16218.	173.1	2.469	537.5	.1159	-87.2			397.4	6.5	100.
76	67.9	16392.	172.7	2.543	536.1	.1202	-87.2			401.0	5.6	167.
77	65.8	16563.	171.9	2.612	534.2	.1244	-87.4			404.2	7.6	196.
78	63.6	16748.	169.0	2.657	525.2	.1290	-87.4			408.1	7.9	196.
79	61.5	16930.	166.2	2.702	518.5	.1334	-88.1			410.6	10.2	195.
80	59.8	17082.	163.5	2.734	511.7	.1370	-88.7			412.4	9.8	194.
81	58.0	17247.	160.6	2.769	503.3	.1409	-89.0			415.5	10.5	195.
82	56.1	17426.	158.4	2.824	497.8	.1450	-89.4			418.4	7.3	185.
83	54.5	17582.	154.7	2.839	486.2	.1486	-89.4			421.9	5.7	146.
84	53.0	17732.	151.2	2.853	473.4	.1520	-88.7			426.9	8.3	140.
85	51.4	17898.	151.1	2.940	475.0	.1556	-89.4			429.0	8.3	139.
86	50.0	18046.	148.1	2.962	465.9	.1588	-89.7			431.9	7.7	169.
87	48.5	18210.	143.1	2.951	449.8	.1623	-89.4			436.2	4.9	166.
88	46.8	18402.	137.0	2.927	432.1	.1662	-90.1			439.0	6.2	166.
89	45.1	18600.	126.6	2.807	398.3	.1701	-89.7			444.8	9.1	168.
90	43.8	18757.	119.8	2.735	378.0	.1729	-90.1			447.4	9.9	156.
91	42.5	18919.	125.8	2.960	395.4	.1758	-89.4			453.0	13.6	163.
92	41.2	19086.	127.0	3.083	398.9	.1788	-89.4			457.0	5.9	193.
93	40.0	19245.	125.4	3.135	394.1	.1817	-89.4			460.9	10.3	130.
94	38.9	19395.	120.9	3.108	380.3	.1845	-89.7			464.0	20.2	135.
95	37.7	19564.	113.1	3.000	355.4	.1873	-89.4			468.8	14.3	143.
96	36.5	19738.	110.1	3.016	346.1	.1901	-89.4			473.1	17.2	129.
97	35.2	19933.	108.4	3.080	341.5	.1933	-89.9			476.8	16.3	128.
98	34.1	20104.	105.3	3.088	330.9	.1960	-89.4			482.4	10.7	131.
99	33.0	20280.	102.3	3.100	322.1	.1987	-89.9			485.7	8.1	161.
100	32.0	20445.	102.3	3.197	322.6	.2011	-90.1			489.4	10.6	173.
101	31.0	20615.	103.2	3.329	324.6	.2037	-89.7			495.1	12.0	165.
102	30.0	20791.	102.3	3.410	322.1	.2063	-89.9			499.1	12.1	171.
103	28.9	20992.	97.9	3.388	308.7	.2093	-90.1			503.8	12.8	172.
104	27.8	21200.	92.1	3.313	291.4	.2122	-90.6			508.1	12.5	165.

STATION: SOUTH POLE			LAUNCH DATE: 5 AUG 89			244 Z	ECC SONDE: 4A4384					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	27.0	21356.	84.7	3.137	267.8	.2143	-90.6			512.4	11.6	160.
106	26.2	21517.	77.9	2.973	245.3	.2163	-89.9			518.8	13.3	154.
107	25.4	21683.	77.1	3.035	242.5	.2181	-89.7			524.1	15.4	151.
108	24.5	21877.	78.0	3.184	245.0	.2203	-89.4			530.2	16.2	147.
109	23.8	22033.	77.0	3.235	242.0	.2221	-89.4			534.6	17.8	142.
110	23.0	22217.	75.3	3.274	236.6	.2241	-89.4			539.9	15.9	150.
111	22.2	22408.	73.6	3.315	231.4	.2262	-89.4			545.3	14.2	153.
112	21.5	22580.	72.2	3.358	226.9	.2280	-89.4			550.4	14.0	151.
113	20.8	22759.	66.2	3.183	207.7	.2298	-89.2			556.3	15.9	167.
114	20.1	22943.	63.1	3.139	197.7	.2315	-88.7			563.1	15.6	161.
115	19.6	23080.	64.8	3.306	201.3	.2328	-87.2			571.9	13.6	146.
116	19.0	23250.	70.0	3.684	215.3	.2344	-85.5			582.2	16.5	145.
117	18.3	23456.	73.3	4.005	226.4	.2365	-86.2			586.6	14.9	143.
118	17.9	23577.	76.3	4.263	235.0	.2378	-85.7			591.6	9.3	169.
119	17.3	23764.	77.8	4.497	239.6	.2398	-85.7			597.4	8.7	182.
120	16.9	23893.	71.7	4.243	221.2	.2412	-85.9			600.7	9.6	161.
121	16.4	24058.	70.4	4.293	216.7	.2429	-85.5			607.2	11.2	159.
122	15.9	24228.	68.5	4.308	210.4	.2446	-85.1			613.9	11.7	167.
123	15.3	24440.	63.4	4.144	194.8	.2466	-85.1			620.7	11.5	172.
124	14.8	24623.	63.5	4.291	194.9	.2483	-85.1			626.6	15.7	169.
125	14.3	24812.	62.2	4.350	190.6	.2499	-84.7			634.1	17.0	152.
126	14.0	24929.	60.9	4.350	186.5	.2509	-84.5			638.7	12.7	147.
127	13.5	25130.	61.4	4.548	187.9	.2527	-84.5			645.3	13.8	157.
128	13.0	25338.	53.3	4.100	163.7	.2544	-85.1			650.3	19.8	157.
129	12.5	25555.	51.5	4.120	157.6	.2561	-84.5			659.7	21.0	154.
130	12.0	25781.	51.0	4.250	155.6	.2577	-83.8			670.2	19.3	143.
131	11.5	26017.	50.7	4.409	153.5	.2594	-82.6			682.4	18.9	146.
132	11.0	26266.	49.0	4.455	147.8	.2611	-81.9			693.8	18.6	150.
133	10.5	26527.	49.2	4.686	148.1	.2629	-81.3			705.1	14.3	130.
134	10.2	26690.	45.8	4.490	137.6	.2640	-81.2			711.6	10.5	117.
135	10.0	26801.	39.7	3.970	119.0	.2647	-80.6			717.6	10.8	135.
136	9.8	26921.	31.7	3.238	94.7	.2653	-79.9			724.6	9.1	113.
137	9.6	27044.	37.4	3.904	111.5	.2659	-79.8			729.8	6.7	118.
138	9.4	27170.	38.5	4.109	114.8	.2666	-79.4			735.7	8.6	153.
139	9.2	27305.	38.6	4.219	114.1	.2673	-78.1			745.8	9.8	149.
140	8.9	27451.	40.5	4.540	119.6	.2681	-77.8			752.6	8.2	119.
141	8.7	27581.	38.6	4.427	114.0	.2688	-77.4			758.7	8.2	118.
142	8.5	27720.	38.3	4.501	113.0	.2695	-77.3			764.6	7.1	123.
143	8.3	27864.	36.9	4.446	108.6	.2702	-76.8			772.0	6.1	130.
144	8.1	28011.	37.4	4.623	109.6	.2710	-76.3			779.6	6.1	130.

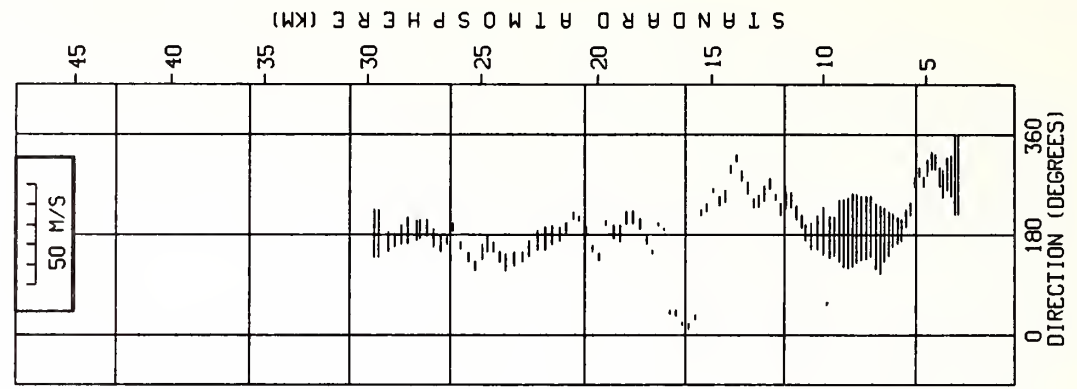
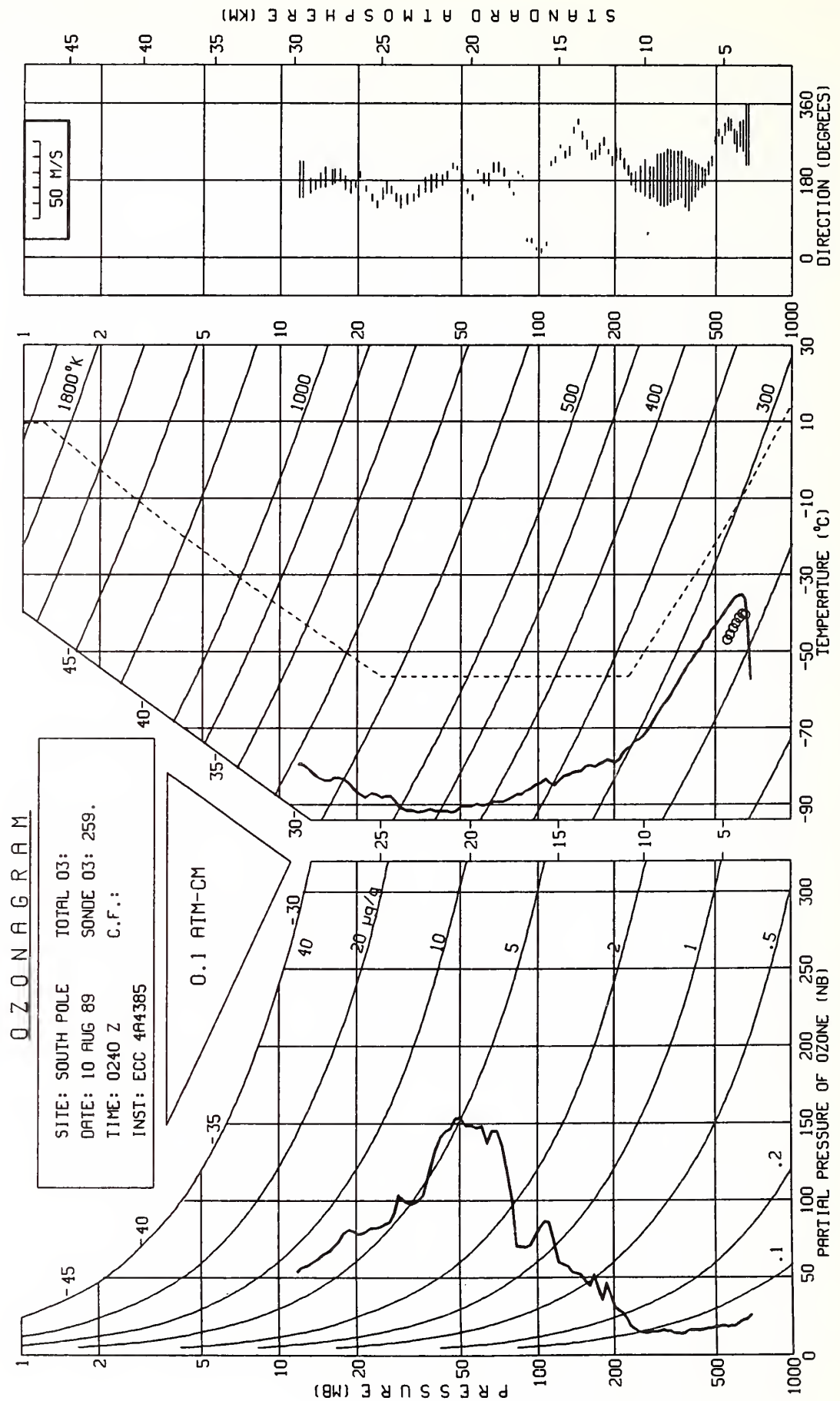
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
18.6	18.4	58.6	155.2	131.2	77.5	50.1	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110105088903		99		ECC	TOTAL O3 FROM SONDE DATA 299
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPP	P3TTTDDDDFFFP	PPP P3TTTDDDDFFFP
1110205088903	668	18-65		500	18-49215 19 300 19-67207 21 200 44-76207 13
1110305088903	150	83-79206	11	100	162-84197 13 70173-87103 6 50148-90169 8
1110405088903		30102-90171	1220.0	63-88158	1510.0 40-81135 11 651 22-52243 48
1110505088903	638	22-46243	48	132	83-82194 12 128 97-82201 12 124 94-83200 12
1110605088903	117	113-83186	9	110	119-83195 9 90188-86186 9 80172-87174 10
1110705088903		44120-90156	10	41	127-89193 6 37110-89129 1726.2 78-90154 13
1110805088903	19.0	70-86145	1717.3	78-86182	913.0 53-85157 2010.5 49-81130 14
1110905088903	9.8	32-80113	9	8.9	41-78119 8 8.1 37-76130 6



STATION: SOUTH POLE LAUNCH DATE: 10 AUG 89 240 Z ECC SONDE: 4A4385
 SURFACE CONDITIONS: PRESSURE 690.4 MB, TEMPERATURE -57.7 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.5 ORD; TBOX 26.0 C AT 71.9 ORD;
 O3 ORD ZERO 37.3, BKGND 38.0, CAL 74.8; O3 BKGND 0.098 MICROAMP; FLOW RATE 26.0 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 259.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	690.4	2835.	26.1	.038	70.0	.0000	-57.7			239.5		
1	671.0	3021.	24.0	.036	60.4	.0006	-43.5			257.4	39.2	287.
2	656.0	3175.	22.7	.035	55.6	.0010	-36.8	-40.7	68.6	266.6	39.2	287.
3	640.0	3346.	22.7	.035	55.2	.0014	-35.5	-40.4	62.3	270.0	20.5	286.
4	620.0	3567.	21.2	.034	51.6	.0020	-35.6	-41.5	55.8	272.3	16.4	289.
5	603.0	3761.	20.0	.033	48.6	.0024	-36.0	-42.9	50.1	274.0	13.9	272.
6	588.0	3935.	18.7	.032	45.7	.0028	-36.8	-44.2	46.9	275.0	9.5	284.
7	571.0	4138.	18.8	.033	46.1	.0033	-38.0	-45.9	44.1	276.0	7.5	311.
8	558.0	4296.	18.4	.033	45.3	.0036	-38.9	-47.2	41.5	276.8	8.6	314.
9	541.0	4508.	18.8	.035	46.6	.0040	-40.3			277.6	8.0	301.
10	527.0	4686.	18.8	.036	46.7	.0044	-41.3			278.4	5.2	276.
11	511.0	4895.	18.4	.036	46.0	.0049	-42.5			279.5	4.7	292.
12	496.0	5096.	18.3	.037	46.0	.0053	-43.9			280.2	4.4	275.
13	480.0	5316.	17.5	.036	44.2	.0058	-44.8			281.7	6.6	226.
14	466.0	5513.	17.5	.038	44.6	.0062	-46.7			281.6	8.5	209.
15	451.0	5729.	16.7	.037	42.7	.0066	-47.5			283.3	10.8	188.
16	439.0	5907.	16.3	.037	41.9	.0070	-49.2			283.3	13.0	187.
17	425.0	6119.	16.3	.038	42.3	.0074	-50.3			284.6	16.7	188.
18	413.0	6306.	16.3	.039	42.4	.0077	-51.3			285.6	22.2	182.
19	401.0	6497.	16.3	.041	42.8	.0081	-52.7			286.2	27.3	180.
20	389.0	6692.	15.9	.041	41.8	.0085	-53.8			287.2	34.0	170.
21	378.0	6876.	14.2	.038	37.5	.0088	-55.4			287.6	32.4	177.
22	365.0	7098.	13.7	.038	36.7	.0092	-57.0			288.3	30.1	195.
23	353.0	7309.	14.1	.040	38.0	.0096	-58.8			288.7	31.8	193.
24	342.0	7507.	14.1	.041	38.4	.0099	-60.3			289.2	32.3	192.
25	331.0	7710.	15.8	.048	43.2	.0103	-62.1			289.5	34.3	191.
26	322.0	7880.	15.4	.048	42.3	.0106	-63.2			290.3	36.6	188.
27	312.0	8074.	16.2	.052	44.8	.0110	-64.2			291.5	35.4	183.
28	303.0	8252.	15.4	.051	42.8	.0114	-65.6			292.0	33.9	183.
29	293.0	8456.	15.0	.051	42.0	.0118	-67.0			292.7	31.3	187.
30	284.0	8643.	15.0	.053	42.3	.0121	-68.6			293.1	19.9	177.
31	274.0	8857.	14.5	.053	41.3	.0126	-70.4			293.5	20.5	176.
32	263.0	9099.	14.5	.055	41.8	.0130	-72.1			294.5	24.0	187.
33	252.0	9350.	14.9	.059	43.1	.0135	-73.1			296.6	16.9	184.
34	241.0	9612.	17.0	.071	49.2	.0140	-73.6			299.7	13.3	177.
35	232.0	9833.	18.9	.081	55.1	.0146	-75.2			300.5	8.0	184.
36	226.0	9985.	22.9	.101	67.0	.0150	-75.5			302.3	6.5	204.
37	218.0	10193.	27.2	.125	80.0	.0156	-76.6			303.7	7.0	220.
38	210.0	10407.	28.5	.136	84.5	.0164	-78.4			304.2	7.8	243.
39	202.0	10628.	30.9	.153	91.8	.0173	-79.1			306.5	8.3	242.
40	195.1	10826.	38.0	.195	112.9	.0182	-78.8			310.1	5.9	225.
41	187.9	11040.	45.9	.244	136.2	.0194	-78.4			314.0	3.1	248.
42	180.9	11257.	36.0	.199	107.1	.0207	-79.1			316.3	5.7	272.
43	173.9	11481.	42.5	.244	126.7	.0218	-79.6			319.1	7.6	254.
44	167.0	11710.	51.4	.308	153.9	.0232	-80.3			321.6	5.8	240.
45	160.8	11924.	44.7	.278	133.5	.0247	-79.9			325.7	4.4	237.
46	154.5	12150.	47.6	.308	142.4	.0261	-80.1			329.2	5.7	263.
47	148.1	12388.	52.0	.351	156.6	.0277	-81.3			331.0	4.8	286.
48	142.8	12593.	52.6	.368	158.4	.0292	-81.5			334.2	3.0	318.
49	137.1	12821.	53.4	.389	161.2	.0309	-81.7			337.8	3.6	298.

STATION: SOUTH POLE				LAUNCH DATE: 10 AUG 89 240 Z				ECC SONDE: 4A4385				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	131.8	13042.	57.3	.435	173.4	.0325	-82.3			340.6	5.8	250.
51	126.5	13271.	58.6	.463	177.5	.0344	-82.6			344.0	4.4	241.
52	121.1	13514.	59.9	.495	182.5	.0364	-83.8			346.2	1.9	260.
53	116.0	13752.	73.5	.634	225.5	.0385	-85.1			348.0	4.0	228.
54	111.0	13995.	85.9	.774	263.0	.0411	-84.5			353.5	2.6	220.
55	106.7	14214.	86.3	.809	262.6	.0438	-83.4			359.7	2.0	32.
56	102.3	14447.	82.3	.804	252.0	.0465	-84.5			361.8	2.5	15.
57	97.8	14696.	76.9	.786	236.0	.0494	-84.9			365.7	1.7	19.
58	93.8	14925.	71.1	.758	219.3	.0518	-85.9			368.1	2.8	39.
59	90.0	15152.	69.8	.776	215.8	.0541	-86.4			371.7	2.2	41.
60	86.5	15368.	70.2	.812	218.2	.0563	-87.4			373.8	1.0	190.
61	83.2	15580.	70.5	.847	219.1	.0584	-87.4			378.0	1.6	199.
62	80.0	15793.	99.9	1.249	311.6	.0608	-88.1			380.9	2.1	149.
63	76.7	16021.	117.4	1.531	367.4	.0642	-88.7			384.1	3.9	170.
64	73.3	16265.	134.3	1.832	421.9	.0685	-89.4			387.7	5.7	200.
65	70.0	16513.	145.1	2.073	456.1	.0734	-89.4			392.8	6.5	211.
66	66.8	16765.	145.1	2.172	455.9	.0787	-89.4			398.1	6.4	211.
67	63.9	17003.	137.4	2.150	433.0	.0836	-89.9			402.1	8.2	182.
68	61.0	17252.	148.0	2.426	467.3	.0887	-90.4			406.5	6.4	185.
69	58.1	17513.	146.9	2.528	462.8	.0943	-89.9			413.2	2.5	201.
70	55.3	17778.	148.7	2.689	470.3	.1001	-90.6			417.5	3.4	140.
71	52.9	18015.	148.5	2.807	469.7	.1052	-90.6			422.8	3.4	154.
72	50.4	18274.	153.5	3.046	485.6	.1109	-90.6			428.7	3.3	188.
73	48.0	18534.	153.0	3.188	487.2	.1168	-91.8			431.8	2.4	209.
74	46.1	18749.	146.5	3.178	467.2	.1216	-92.1			436.2	4.0	215.
75	44.0	18996.	145.0	3.295	461.8	.1269	-91.8			442.7	6.5	190.
76	42.0	19243.	140.8	3.352	448.3	.1322	-91.8			448.6	7.1	181.
77	40.0	19502.	132.6	3.315	422.1	.1374	-91.8			454.9	9.5	179.
78	38.1	19761.	117.6	3.087	373.5	.1423	-91.3			462.5	11.4	173.
79	36.2	20033.	103.5	2.859	329.4	.1469	-91.8			468.0	10.2	170.
80	34.2	20335.	99.1	2.898	315.9	.1514	-92.1			475.0	8.0	155.
81	32.6	20589.	97.7	2.997	310.7	.1551	-91.6			482.9	4.9	140.
82	30.8	20891.	99.2	3.221	315.4	.1595	-91.6			490.8	6.8	137.
83	29.1	21194.	103.3	3.550	327.1	.1639	-90.8			500.9	8.4	130.
84	28.0	21401.	92.0	3.286	288.5	.1670	-89.0			511.6	5.6	140.
85	26.8	21638.	85.9	3.205	267.6	.1701	-87.9			521.2	5.2	158.
86	25.7	21865.	84.7	3.296	263.9	.1729	-87.9			527.5	9.0	164.
87	24.8	22058.	83.1	3.351	259.6	.1752	-88.3			531.6	7.5	149.
88	23.6	22328.	82.2	3.483	255.5	.1785	-87.4			541.7	4.8	124.
89	22.6	22563.	82.1	3.633	255.0	.1813	-87.2			549.1	4.8	140.
90	21.4	22860.	79.2	3.701	247.4	.1848	-88.3			554.5	3.7	161.
91	20.3	23146.	78.3	3.857	243.2	.1880	-87.2			566.2	3.9	193.
92	19.5	23366.	80.2	4.113	247.5	.1905	-86.2			576.0	3.8	170.
93	18.7	23596.	81.2	4.342	248.7	.1932	-84.7			587.4	8.4	165.
94	17.8	23869.	78.5	4.410	239.1	.1963	-83.6			599.4	9.1	174.
95	17.0	24125.	72.9	4.288	221.5	.1991	-83.2			608.5	8.3	192.
96	16.2	24393.	69.7	4.302	211.9	.2018	-83.2			617.0	9.2	190.
97	15.8	24532.	67.5	4.272	205.8	.2031	-83.8			619.5	10.1	187.
98	14.9	24857.	65.2	4.376	198.8	.2062	-83.8			630.0	13.0	187.
99	14.2	25125.	62.4	4.394	189.6	.2087	-83.2			640.6	10.1	180.
100	13.6	25365.	60.2	4.426	182.0	.2108	-82.3			651.8	6.8	170.
101	13.0	25619.	58.2	4.477	175.0	.2129	-81.0			664.6	9.9	168.
102	12.2	25977.	56.3	4.615	167.9	.2157	-79.6			681.7	23.5	182.
103	11.8	26166.	53.8	4.559	160.4	.2172	-79.6			688.2	23.5	182.

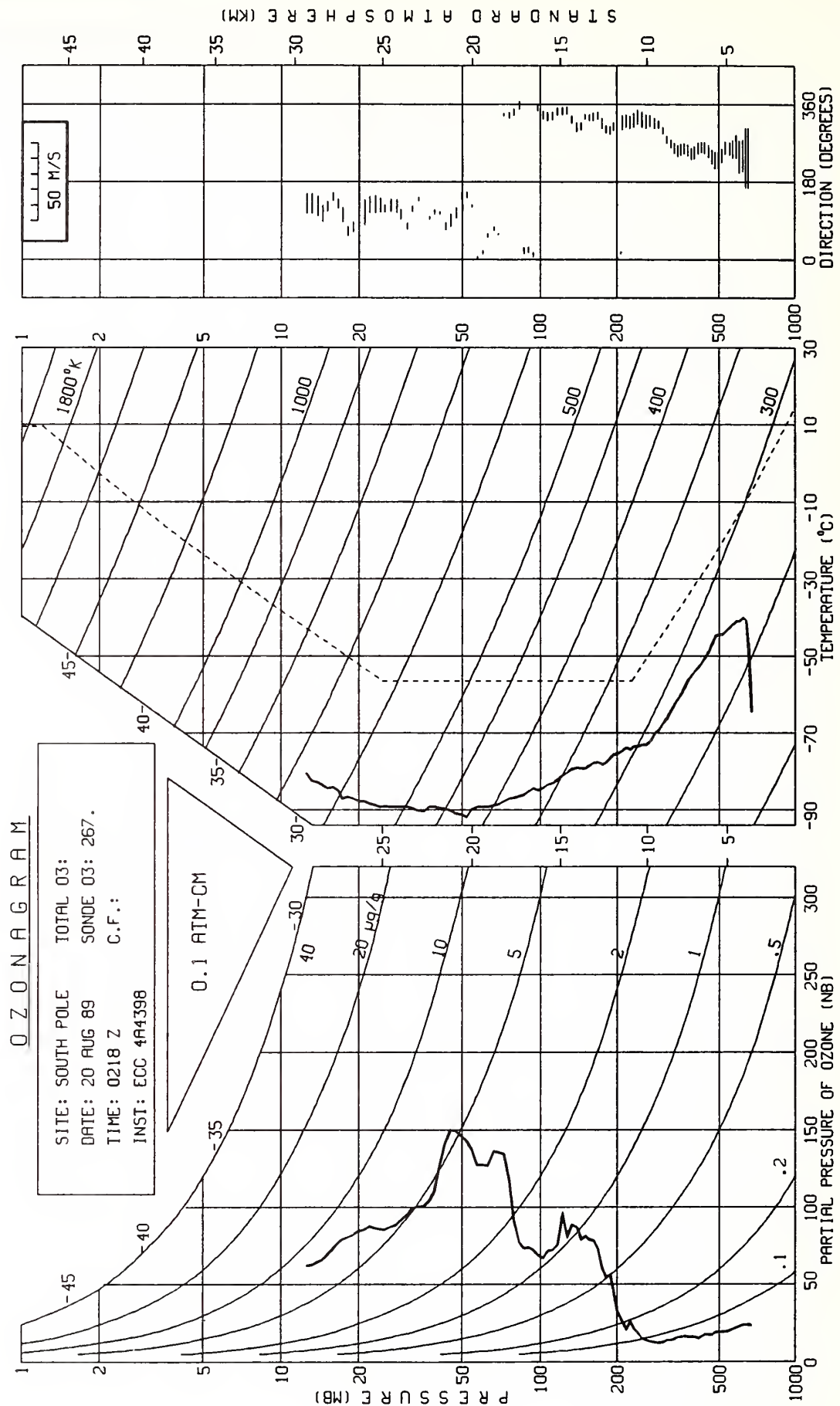
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
20.3	15.4	39.0	93.5	132.2	82.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110110088903			99		ECC TOTAL O3 FROM SONDE DATA 259
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	P3TTTDDDDFFFP P3TTTDDDDFFFP
1110210088903	690	26-58		500	18-44280 4 300 15-66184 33 200 33-79237 8
1110310088903	150	51-81279	5	100	80-85 17 2 70145-89211 7 50153-91191 3
1110410088903	30101	-91134	820.0	79-87184	4 671 24-44287 39 656 23-37287 39
1110510088903	640	23-36286	21	263	15-72187 24 188 46-78248 3 181 36-79272 6
1110610088903	167	51-80240	6	161	45-80237 4 121 60-84260 2 116 74-85228 4
1110710088903	111	86-85220	3	83	71-87199 2 80100-88149 2 64137-90182 8
1110810088903	61148	-90185	6	42141-92181	7 36104-92170 1029.1103-91130 8
1110910088903	26.8	86-88158	517.8	79-84174	914.9 65-84187 1311.8 54-80182 24



STATION: SOUTH POLE LAUNCH DATE: 20 AUG 89 218 Z ECC SONDE: 4A4398
 SURFACE CONDITIONS: PRESSURE 667.8 MB, TEMPERATURE -64.8 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.9 ORD; TBOX 26.0 C AT 71.0 ORD;
 O3 ORD ZERO 29.9, BKGND 30.2, CAL 65.5; O3 BKGND 0.044 MICROAMP; FLOW RATE 27.5 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 267.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	667.8	2835.	23.5	.035	65.1	.0000	-64.8			233.8		
1	651.0	2996.	23.9	.037	61.4	.0005	-48.8			253.6	38.5	236.
2	635.0	3163.	23.7	.037	58.8	.0009	-40.9			264.5	38.5	236.
3	619.0	3337.	23.6	.038	58.4	.0014	-40.3			267.1	20.6	241.
4	601.0	3538.	23.1	.038	57.4	.0020	-41.2			268.3	21.1	238.
5	585.0	3721.	22.1	.038	55.1	.0024	-41.2			270.4	14.9	262.
6	567.0	3933.	21.2	.037	52.9	.0030	-41.9			272.0	11.7	257.
7	550.0	4139.	20.3	.037	50.8	.0035	-42.7			273.4	8.2	258.
8	530.0	4388.	19.3	.036	48.7	.0040	-43.9			274.9	7.9	258.
9	514.0	4594.	19.4	.038	48.9	.0045	-44.7			276.3	8.6	241.
10	499.0	4792.	19.3	.039	48.9	.0050	-44.7			278.7	10.5	231.
11	483.0	5010.	18.9	.039	47.7	.0054	-45.0			280.9	10.6	231.
12	470.0	5191.	17.4	.037	44.5	.0058	-47.0			280.7	8.8	239.
13	455.0	5405.	17.5	.038	45.2	.0063	-49.1			280.6	8.0	251.
14	441.0	5610.	17.6	.040	45.7	.0067	-50.6			281.2	7.6	259.
15	429.0	5789.	16.6	.039	43.3	.0071	-51.9			281.8	6.7	262.
16	415.0	6003.	15.2	.037	39.8	.0075	-53.2			282.9	7.3	258.
17	401.0	6224.	16.0	.040	42.3	.0079	-54.2			284.3	8.2	248.
18	389.0	6418.	16.1	.041	42.6	.0083	-55.4			285.2	7.5	245.
19	378.0	6601.	16.0	.042	42.6	.0086	-56.6			285.9	7.0	254.
20	367.0	6787.	16.4	.045	44.1	.0090	-58.3			286.1	7.0	258.
21	356.0	6978.	15.9	.045	43.0	.0094	-60.1			286.2	7.2	256.
22	346.0	7155.	15.8	.046	43.1	.0098	-61.3			286.9	7.6	253.
23	335.0	7355.	14.8	.044	40.7	.0102	-62.8			287.5	6.3	259.
24	325.0	7541.	13.9	.043	38.4	.0105	-64.4			287.8	5.3	269.
25	313.0	7770.	13.9	.044	38.8	.0109	-66.4			288.2	5.0	279.
26	302.0	7986.	12.5	.041	35.2	.0113	-67.8			289.1	4.4	300.
27	291.0	8208.	12.0	.041	34.1	.0116	-69.4			289.9	5.4	314.
28	281.0	8416.	12.5	.044	35.5	.0120	-70.4			291.4	7.1	317.
29	270.0	8652.	12.9	.048	37.2	.0124	-72.4			291.9	7.7	323.
30	260.0	8874.	13.8	.053	40.0	.0128	-73.3			293.7	8.8	320.
31	251.0	9080.	14.8	.059	42.7	.0131	-73.3			296.7	9.7	325.
32	242.0	9294.	18.4	.076	53.3	.0136	-73.7			299.1	9.3	331.
33	233.0	9515.	21.5	.092	62.3	.0142	-73.7			302.4	9.0	323.
34	226.0	9693.	26.0	.115	75.5	.0147	-74.5			303.9	8.4	319.
35	218.0	9903.	21.0	.096	60.8	.0154	-74.0			307.7	8.3	322.
36	210.0	10121.	25.8	.123	75.1	.0160	-74.8			309.9	9.6	319.
37	200.0	10403.	33.2	.166	97.1	.0171	-75.7			312.8	7.5	313.
38	194.0	10580.	45.2	.233	132.2	.0179	-75.8			315.2	5.6	309.
39	188.0	10761.	56.4	.300	165.8	.0191	-76.8			316.6	5.3	300.
40	181.2	10972.	54.7	.302	161.7	.0207	-77.9			318.1	5.2	303.
41	174.8	11177.	60.7	.347	179.9	.0223	-78.4			320.5	6.4	317.
42	168.1	11401.	73.2	.435	216.4	.0243	-77.8			325.2	5.2	335.
43	161.9	11616.	78.4	.484	231.9	.0265	-77.9			328.5	5.3	332.
44	156.1	11824.	78.9	.505	234.1	.0287	-78.6			330.8	4.4	330.
45	150.2	12043.	81.2	.541	241.9	.0311	-79.4			333.0	3.2	332.
46	144.7	12255.	79.2	.547	236.1	.0334	-79.4			336.6	4.9	309.
47	138.9	12487.	87.1	.627	259.5	.0360	-79.3			340.8	5.8	307.
48	133.0	12733.	88.7	.667	264.6	.0390	-79.6			344.5	4.9	326.
49	127.2	12985.	81.0	.637	242.6	.0420	-80.5			347.3	4.7	347.

STATION: SOUTH POLE			LAUNCH DATE: 20 AUG 89					218 Z	ECC SONDE: 4A4398				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	122.0	13220.	95.2	.780	286.7	.0448	-81.3			349.9	4.9	345.	
51	117.0	13455.	75.7	.647	228.8	.0478	-82.3			352.4	4.8	344.	
52	112.0	13699.	72.5	.647	220.2	.0503	-83.2			355.1	5.0	334.	
53	107.0	13952.	71.7	.670	218.4	.0529	-83.6			359.0	5.4	332.	
54	102.5	14190.	66.9	.653	204.8	.0553	-84.5			361.6	5.4	336.	
55	98.1	14432.	68.8	.701	211.2	.0576	-85.1			365.0	3.9	352.	
56	94.1	14662.	72.4	.769	221.6	.0599	-84.5			370.6	3.6	11.	
57	90.0	14908.	73.8	.820	226.9	.0624	-85.3			373.7	3.7	22.	
58	86.3	15138.	73.6	.853	227.3	.0648	-86.2			376.6	4.1	20.	
59	82.9	15358.	77.3	.932	239.1	.0672	-86.6			380.1	5.2	358.	
60	79.0	15621.	91.4	1.157	283.5	.0702	-87.0			384.5	4.4	343.	
61	75.9	15839.	116.9	1.540	362.8	.0733	-87.2			388.5	3.8	335.	
62	72.4	16096.	134.4	1.856	418.8	.0778	-87.9			392.4	2.1	336.	
63	69.0	16356.	135.3	1.961	423.5	.0828	-88.7			395.9	.7	58.	
64	66.0	16596.	136.1	2.062	426.6	.0876	-89.0			400.5	2.3	71.	
65	62.7	16873.	126.7	2.021	398.0	.0930	-89.4			405.4	2.2	56.	
66	60.0	17110.	127.4	2.123	400.3	.0974	-89.4			410.5	2.5	16.	
67	57.1	17376.	127.3	2.229	399.9	.1023	-89.4			416.3	1.7	4.	
68	54.5	17627.	137.5	2.523	433.1	.1071	-89.9			420.9	1.3	124.	
69	52.1	17867.	142.7	2.739	454.9	.1120	-92.1			421.2	3.4	149.	
70	49.7	18118.	146.0	2.938	463.6	.1173	-91.3			428.7	4.4	147.	
71	47.3	18381.	149.0	3.150	472.5	.1230	-91.1			435.4	6.6	109.	
72	45.2	18624.	149.9	3.316	473.5	.1283	-90.4			442.8	8.4	90.	
73	43.1	18879.	141.2	3.276	444.9	.1338	-89.9			450.0	4.2	77.	
74	41.0	19147.	126.8	3.093	398.9	.1392	-89.7			457.1	1.8	108.	
75	39.1	19403.	110.0	2.813	345.7	.1438	-89.4			463.9	3.1	110.	
76	37.3	19656.	103.9	2.786	326.6	.1477	-89.4			470.2	1.7	96.	
77	35.6	19906.	100.7	2.829	318.4	.1515	-90.6			473.5	.4	78.	
78	33.8	20184.	100.5	2.973	317.6	.1556	-90.4			481.2	2.2	140.	
79	32.0	20478.	99.2	3.100	312.2	.1599	-89.7			490.6	3.6	117.	
80	30.6	20718.	94.9	3.101	298.2	.1633	-89.4			497.6	3.8	77.	
81	29.0	21007.	91.6	3.159	287.8	.1673	-89.4			505.3	6.2	104.	
82	27.8	21235.	88.6	3.187	278.4	.1703	-89.4			511.4	8.3	123.	
83	26.3	21533.	87.3	3.319	274.2	.1741	-89.4			519.6	7.9	125.	
84	25.0	21806.	85.4	3.416	268.0	.1775	-89.2			527.8	4.9	118.	
85	24.0	22026.	86.0	3.583	270.4	.1803	-89.4			533.3	9.0	127.	
86	23.0	22255.	86.4	3.757	270.7	.1831	-89.0			541.2	10.7	128.	
87	21.9	22520.	87.6	4.000	273.8	.1865	-88.5			550.2	10.3	127.	
88	20.9	22773.	85.6	4.096	266.8	.1897	-87.9			559.6	16.5	109.	
89	19.9	23039.	84.6	4.251	263.5	.1929	-87.9			567.5	16.4	97.	
90	18.9	23320.	82.2	4.349	255.3	.1964	-87.2			577.9	6.6	75.	
91	18.0	23586.	80.5	4.472	249.3	.1995	-86.8			587.4	5.8	64.	
92	17.2	23834.	79.1	4.599	245.5	.2023	-87.2			593.7	9.0	103.	
93	16.6	24028.	77.0	4.639	236.6	.2045	-85.1			606.4	5.9	129.	
94	15.8	24301.	73.2	4.633	223.8	.2074	-84.3			617.6	5.7	146.	
95	15.0	24588.	69.1	4.607	211.5	.2104	-84.5			626.2	6.4	122.	
96	14.4	24814.	66.0	4.583	201.2	.2126	-83.8			636.2	10.0	105.	
97	13.8	25050.	64.7	4.688	196.4	.2148	-83.0			646.5	12.9	124.	
98	13.1	25341.	62.8	4.794	190.2	.2174	-82.6			657.5	12.7	129.	
99	12.5	25604.	62.2	4.976	186.6	.2197	-80.6			673.3	12.7	129.	

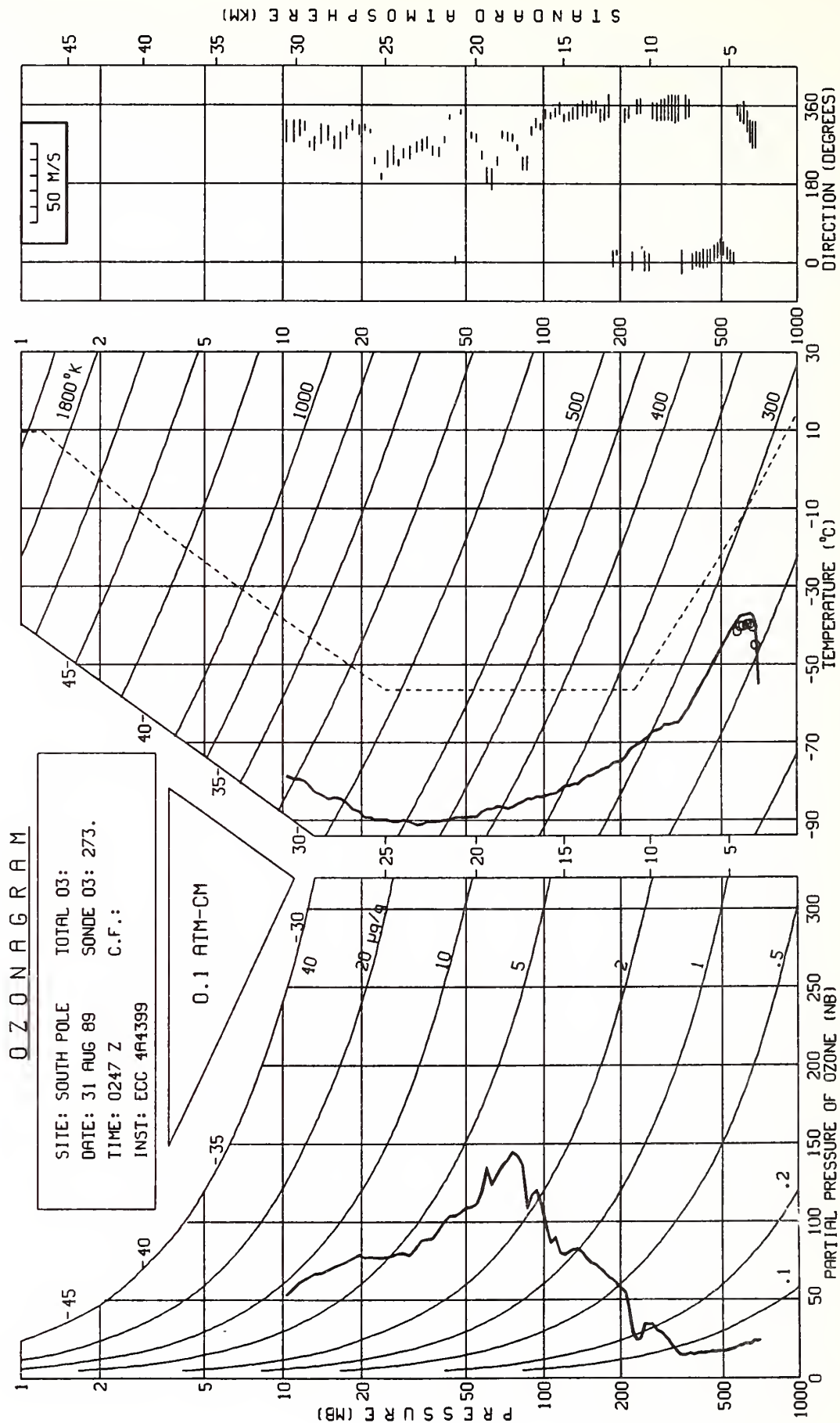
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
21.6	15.1	54.8	91.6	125.0	84.7	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110120088902			99		ECC TOTAL O3 FROM SONDE DATA 267
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPP	P3TTTDDDDFFFP	PPP P3TTTDDDDFFFP
1110220088902	668	24-65		500	19-45232 10 300 12-68303 5 200 33-76313 8
1110320088902	150	81-79331	3	100	68-85345 5 70135-88141 1 50146-91147 4
1110420088902	30	94-89 87	520.0	85-88 98	16 651 24-49236 39 635 24-41236 39
1110520088902	260	14-73320	9	188	56-77300 5 133 89-80326 5 127 81-81347 5
1110620088902	122	95-81345	5	117	76-82344 5 83 77-87358 5 79 91-87343 4
1110720088902		72134-88336	2	57127-89	4 2 45150-90 90 8 37104-89 96 2
1110820088902	17.2	79-87103		912.5	62-81129 13



STATION: SOUTH POLE LAUNCH DATE: 31 AUG 89 247 Z ECC SONDE: 4A4399
 SURFACE CONDITIONS: PRESSURE 702.5 MB, TEMPERATURE -55.4 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.5 ORD; TBOX 25.5 C AT 71.4 ORD;
 O3 ORD ZERO 29.0, BKGND 30.5, CAL 63.7; O3 BKGND 0.226 MICROAMP; FLOW RATE 27.2 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 273.; C.F.

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
0	702.5	2835.	24.4	.035	64.8	.0000	-55.4			240.9		
1	683.0	3021.	23.6	.035	58.3	.0005	-39.4	-45.3	54.9	260.6	17.2	294.
2	665.0	3205.	24.1	.036	59.2	.0010	-37.6	-40.6	74.4	264.7	17.2	294.
3	650.0	3362.	22.3	.034	54.6	.0015	-37.2	-39.9	77.8	266.9	14.5	302.
4	633.0	3545.	22.0	.035	53.8	.0019	-37.4	-40.1	77.7	268.6	13.6	325.
5	613.0	3767.	22.1	.036	54.1	.0025	-37.7	-40.4	77.5	270.8	14.8	345.
6	595.0	3972.	21.1	.035	51.8	.0030	-37.8	-40.5	77.5	273.0	11.0	344.
7	578.0	4172.	20.7	.036	51.0	.0035	-39.1	-41.8	76.8	273.7	7.2	351.
8	560.0	4388.	19.3	.034	47.8	.0040	-40.4			274.7	7.7	9.
9	542.0	4610.	18.6	.034	46.3	.0045	-41.7			275.8	7.5	16.
10	527.0	4800.	18.1	.034	45.5	.0049	-43.3			276.0	7.3	21.
11	510.0	5020.	17.3	.034	43.8	.0053	-44.9			276.7	9.2	32.
12	497.0	5192.	17.3	.035	44.0	.0057	-46.3			277.1	10.0	36.
13	481.0	5409.	17.4	.036	44.7	.0061	-48.0			277.5	10.1	28.
14	467.0	5603.	17.0	.036	44.0	.0065	-49.6			277.9	9.8	22.
15	452.0	5816.	17.1	.038	44.4	.0069	-51.2			278.5	9.5	14.
16	439.0	6005.	16.6	.038	43.7	.0073	-53.0			278.5	11.5	9.
17	424.0	6228.	16.3	.038	43.0	.0078	-54.5			279.4	12.2	9.
18	410.0	6442.	16.3	.040	43.5	.0082	-56.4			279.6	9.7	7.
19	398.0	6630.	16.0	.040	42.8	.0086	-57.8			280.2	9.6	8.
20	385.0	6839.	15.1	.039	40.8	.0090	-59.5			280.7	10.0	2.
21	373.0	7036.	16.0	.043	43.6	.0093	-61.3			280.8	11.7	355.
22	362.0	7221.	15.1	.042	41.4	.0097	-62.5			281.6	15.1	358.
23	350.0	7428.	14.7	.042	40.7	.0101	-64.1			282.3	15.0	1.
24	340.0	7606.	15.2	.045	42.1	.0104	-65.1			283.2	16.9	355.
25	329.0	7806.	18.0	.055	50.0	.0109	-65.1			285.9	17.8	352.
26	319.0	7994.	20.9	.066	58.1	.0113	-65.5			287.9	16.6	356.
27	309.0	8188.	24.1	.078	67.0	.0118	-65.7			290.2	16.0	356.
28	299.0	8388.	26.6	.089	74.0	.0125	-65.6			293.1	14.2	351.
29	289.0	8594.	29.2	.101	81.8	.0132	-66.8			294.3	13.2	350.
30	279.0	8806.	30.6	.110	85.9	.0140	-67.1			296.7	11.4	346.
31	268.0	9049.	34.7	.129	97.6	.0150	-67.5			299.5	10.4	348.
32	260.0	9231.	34.4	.132	97.0	.0158	-68.6			300.6	11.1	0.
33	250.0	9466.	34.7	.139	98.1	.0169	-69.3			302.9	12.7	3.
34	240.0	9709.	25.3	.105	72.0	.0179	-70.4			304.8	9.6	359.
35	233.0	9884.	24.4	.105	69.5	.0185	-70.8			306.8	9.3	358.
36	224.0	10117.	29.0	.129	82.9	.0193	-71.5			309.2	11.8	2.
37	216.0	10332.	45.2	.209	130.1	.0202	-72.5			310.8	7.9	345.
38	209.0	10524.	55.0	.263	159.6	.0215	-74.0			311.5	9.5	338.
39	200.0	10780.	57.8	.289	168.6	.0234	-75.2			313.5	8.1	355.
40	193.9	10960.	60.2	.310	175.3	.0248	-75.1			316.5	3.5	22.
41	186.9	11173.	62.9	.337	183.7	.0265	-75.5			319.1	11.1	8.
42	180.0	11390.	64.4	.358	189.2	.0284	-76.5			321.0	14.9	359.
43	173.0	11619.	67.3	.389	197.8	.0304	-76.8			324.2	10.0	344.
44	166.9	11825.	69.9	.419	205.9	.0323	-77.3			326.7	8.2	338.
45	160.6	12045.	72.4	.451	214.1	.0345	-77.9			329.2	7.9	357.
46	154.2	12277.	73.4	.476	217.7	.0368	-78.6			331.9	8.2	357.
47	148.0	12511.	76.1	.514	226.3	.0391	-78.9			335.3	8.3	349.
48	142.1	12742.	80.2	.564	239.2	.0416	-79.6			338.0	9.9	354.
49	136.3	12978.	82.5	.605	247.6	.0442	-80.8			339.9	9.9	347.

STATION: SOUTH POLE			LAUNCH DATE: 31 AUG 89			247 Z	ECC SONDE: 4A4399					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	131.0	13201.	82.3	.628	247.1	.0468	-80.8			343.8	7.7	342.
51	126.0	13420.	80.9	.642	243.4	.0492	-81.3			346.7	6.0	335.
52	121.0	13647.	78.9	.652	237.3	.0518	-81.3			350.7	4.4	331.
53	116.0	13884.	80.1	.691	242.1	.0544	-82.3			353.3	7.7	354.
54	111.2	14120.	89.9	.808	273.3	.0571	-83.2			355.8	5.6	344.
55	106.8	14344.	86.7	.812	263.7	.0599	-83.4			359.6	4.1	337.
56	102.0	14600.	97.8	.959	298.0	.0632	-83.8			363.6	6.3	340.
57	97.7	14838.	111.7	1.143	341.2	.0665	-84.1			367.4	4.7	312.
58	93.9	15058.	120.3	1.281	367.0	.0701	-84.0			371.9	6.3	319.
59	90.1	15286.	117.3	1.302	359.3	.0739	-84.7			374.8	5.6	301.
60	86.5	15512.	109.6	1.267	335.6	.0777	-84.5			379.6	9.2	228.
61	82.8	15753.	136.4	1.647	419.3	.0816	-85.3			382.7	8.4	227.
62	79.2	15997.	142.2	1.795	438.6	.0864	-85.9			386.4	3.6	263.
63	75.9	16230.	144.5	1.904	447.0	.0911	-86.6			389.8	5.0	286.
64	72.5	16480.	139.8	1.928	434.2	.0963	-87.2			393.6	5.1	288.
65	69.3	16726.	136.0	1.962	421.4	.1012	-86.8			399.6	4.6	293.
66	66.0	16992.	130.2	1.973	403.0	.1064	-86.6			405.7	5.3	232.
67	63.0	17246.	124.0	1.968	384.9	.1110	-87.2			409.7	13.6	191.
68	60.1	17503.	133.9	2.228	415.6	.1157	-87.2			415.2	10.7	198.
69	57.6	17734.	119.6	2.076	372.8	.1200	-87.9			418.9	5.6	247.
70	55.0	17984.	111.7	2.031	350.5	.1243	-89.2			421.3	4.9	285.
71	52.5	18234.	109.7	2.090	344.3	.1284	-89.2			427.0	3.9	292.
72	50.0	18497.	109.0	2.180	342.5	.1326	-89.4			432.4	3.2	293.
73	47.8	18739.	106.3	2.224	334.0	.1364	-89.4			438.0	3.0	345.
74	45.5	19005.	104.0	2.286	326.9	.1405	-89.4			444.2	4.6	4.
75	43.4	19258.	103.8	2.392	327.6	.1443	-90.1			448.6	3.0	333.
76	41.4	19511.	100.2	2.420	315.9	.1481	-90.1			454.7	4.3	281.
77	39.5	19763.	94.9	2.403	299.7	.1517	-90.4			460.2	6.1	254.
78	37.4	20055.	89.4	2.390	282.7	.1557	-90.6			466.8	6.0	257.
79	35.5	20334.	88.8	2.501	280.8	.1594	-90.6			473.8	7.8	275.
80	33.9	20580.	88.2	2.602	279.7	.1626	-91.1			478.8	7.8	269.
81	32.4	20822.	83.7	2.583	265.8	.1657	-91.3			484.4	7.1	264.
82	30.6	21127.	78.6	2.569	248.5	.1694	-90.6			494.4	8.5	252.
83	28.8	21451.	80.0	2.778	252.3	.1731	-90.1			504.3	6.1	250.
84	27.6	21679.	79.6	2.884	251.6	.1758	-90.6			509.2	4.3	228.
85	26.3	21937.	78.4	2.981	247.8	.1787	-90.6			516.2	12.2	246.
86	25.0	22209.	77.5	3.100	244.4	.1818	-90.1			525.1	10.2	237.
87	23.7	22495.	77.0	3.249	242.8	.1851	-90.1			533.2	4.0	196.
88	22.4	22797.	77.3	3.451	243.9	.1885	-90.1			541.9	3.9	232.
89	21.5	23018.	77.5	3.605	243.6	.1910	-89.4			550.4	2.3	300.
90	20.5	23274.	77.3	3.771	243.0	.1939	-89.4			557.9	4.5	309.
91	19.5	23544.	79.0	4.051	246.0	.1970	-87.9			570.8	6.6	304.
92	18.3	23889.	76.5	4.180	237.7	.2009	-87.2			583.3	7.3	314.
93	17.4	24165.	74.4	4.276	228.8	.2039	-85.5			597.0	8.4	297.
94	16.5	24458.	72.8	4.412	222.9	.2070	-84.5			609.4	10.3	279.
95	15.7	24733.	71.3	4.541	218.0	.2098	-84.3			618.7	8.2	274.
96	14.9	25022.	69.4	4.658	212.6	.2127	-84.7			626.7	9.4	296.
97	14.0	25367.	67.2	4.800	204.8	.2161	-83.6			641.9	12.5	294.
98	13.2	25694.	66.8	5.061	202.6	.2192	-82.8			655.4	8.9	271.
99	12.6	25954.	64.8	5.143	195.2	.2216	-81.3			669.3	3.9	270.
100	12.1	26183.	63.2	5.223	189.0	.2237	-80.1			681.5	5.8	312.
101	11.6	26421.	61.5	5.302	183.4	.2257	-79.6			691.6	10.7	308.
102	11.0	26723.	57.6	5.236	171.9	.2283	-79.6			702.1	14.2	301.
103	10.3	27096.	53.2	5.165	158.1	.2312	-78.8			718.6	14.2	301.

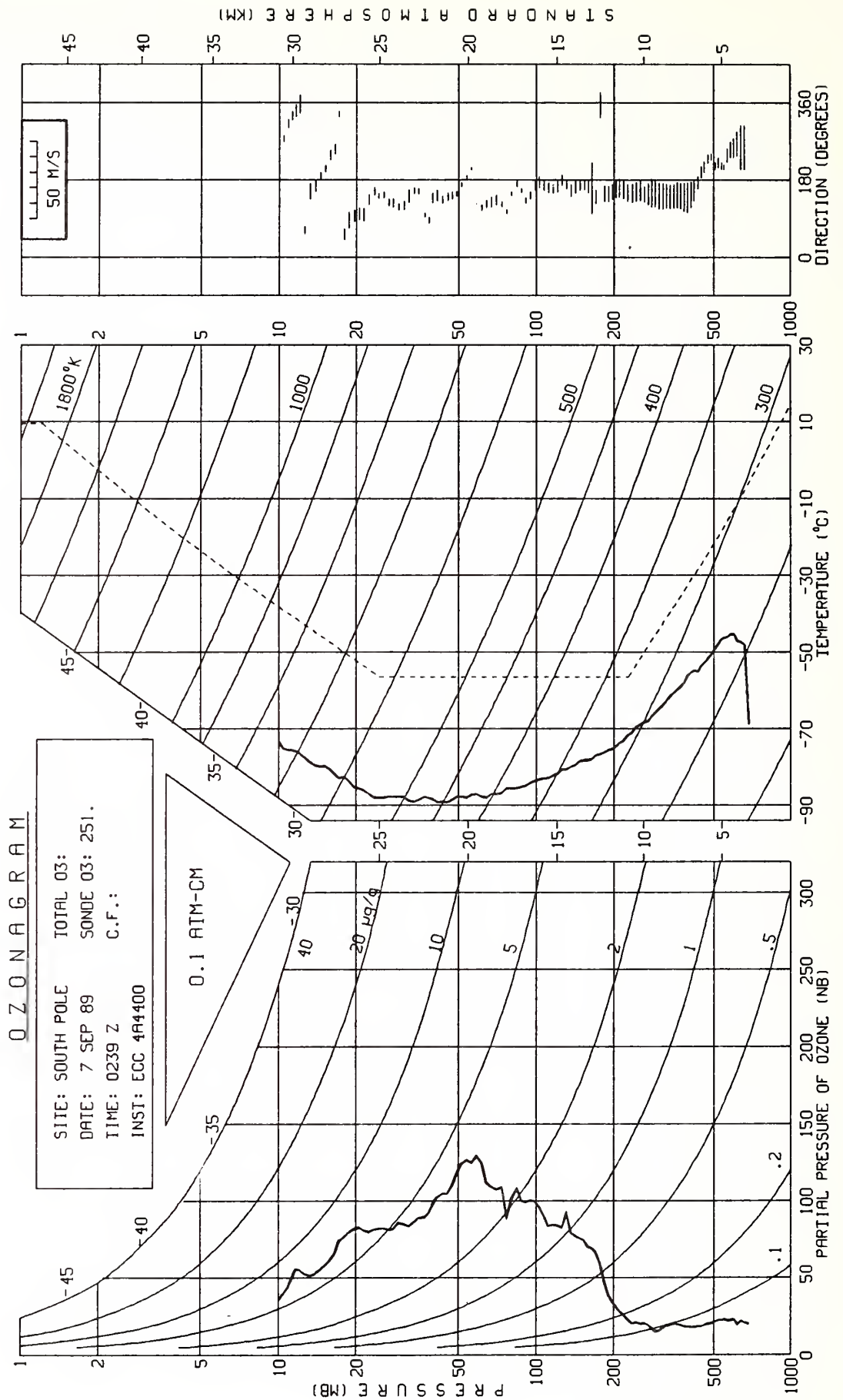
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
20.8	20.7	60.1	113.5	102.7	76.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX XP T CORR	COMMENTS
1110131088903	99	ECC TOTAL O3 FROM SONDE DATA 273
ISNNYYMMJJGG	PPPP P3TTTDDDDFFPPPP	P3TTTDDDDFFPPPP P3TTTDDDDFFPPPP P3TTTDDDDFF
1110231088903	703 24-55	700 24-53 37 2 500 17-46 35 10 300 26-66352 14
1110331088903	200 58-75355	8 150 75-79352 8 100104-84327 6 70137-87292 5
1110431088903	50109-89293	3 30 79-90251 820.0 78-89307 6 683 24-39294 17
1110531088903	665 24-38294	17 595 21-38344 11 350 15-64 1 15 250 35-69 3 13
1110631088903	233 24-71358	9 224 29-72 2 12 209 55-74338 10 116 80-82354 8
1110731088903	111 90-83344	6 107 87-83337 4 94120-84319 6 87110-85228 9
1110831088903	83136-85227	8 79142-86263 4 63124-87191 14 60134-87198 11
1110931088903	55112-89285	510.3 53-79301 14



STATION: SOUTH POLE LAUNCH DATE: 7 SEP 89 239 Z ECC SONDE: 4A4400
 SURFACE CONDITIONS: PRESSURE 685.1 MB, TEMPERATURE -69.0 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 82.9 ORD; HUM 33.0 % AT 77.8 ORD; TBOX 25.0 C AT 70.5 ORD;
 O3 ORD ZERO 30.0, BKGND 30.3, CAL 64.5; O3 BKGND 0.046 MICROAMP; FLOW RATE 27.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 251.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	685.1	2835.	20.1	.029	56.9	.0000	-69.0			227.4		
1	659.0	3079.	20.7	.031	53.1	.0006	-48.4			253.2	28.6	256.
2	637.0	3303.	21.7	.034	55.5	.0012	-47.6			256.5	28.6	256.
3	617.0	3514.	19.6	.032	50.2	.0017	-47.3			259.3	15.7	264.
4	598.0	3721.	22.9	.038	58.2	.0023	-45.6			263.6	12.3	255.
5	581.0	3914.	22.5	.039	57.1	.0028	-45.6			265.8	9.9	250.
6	566.0	4088.	22.0	.039	56.0	.0032	-46.3			267.0	8.2	237.
7	549.0	4290.	23.0	.042	58.5	.0038	-46.5			269.0	3.1	210.
8	536.0	4449.	22.5	.042	57.5	.0042	-46.8			270.5	3.9	213.
9	521.0	4637.	22.5	.043	57.8	.0047	-48.1			271.1	6.3	220.
10	507.0	4816.	21.6	.043	55.6	.0052	-49.2			271.9	5.0	213.
11	490.0	5039.	20.6	.042	53.5	.0058	-50.7			272.7	4.1	234.
12	474.0	5255.	20.0	.042	52.3	.0063	-51.9			273.9	5.9	230.
13	458.0	5477.	19.5	.043	51.2	.0069	-53.0			275.1	7.4	210.
14	446.0	5647.	18.5	.041	48.8	.0073	-53.7			276.4	7.6	198.
15	431.0	5867.	18.5	.043	49.1	.0078	-55.4			277.0	7.9	174.
16	418.0	6062.	18.0	.043	47.6	.0083	-55.0			279.9	12.1	153.
17	406.0	6248.	18.0	.044	47.8	.0087	-55.6			281.5	16.7	145.
18	392.0	6471.	18.4	.047	49.1	.0092	-56.3			283.4	19.4	139.
19	380.0	6668.	18.4	.048	49.4	.0096	-58.1			283.6	18.8	140.
20	368.0	6869.	19.3	.052	52.1	.0101	-59.3			284.6	16.9	143.
21	357.0	7059.	19.7	.055	53.4	.0106	-60.0			286.1	16.0	144.
22	346.0	7254.	20.2	.058	54.8	.0111	-60.8			287.5	15.5	142.
23	334.0	7473.	19.2	.057	52.3	.0117	-61.8			289.1	15.3	140.
24	323.0	7680.	19.1	.059	52.6	.0122	-63.0			290.2	16.0	142.
25	313.0	7873.	17.3	.055	47.8	.0126	-64.1			291.4	16.7	142.
26	302.0	8092.	15.4	.051	42.7	.0131	-65.1			293.0	17.0	143.
27	292.0	8296.	15.3	.052	42.7	.0135	-66.1			294.3	16.6	147.
28	284.0	8465.	17.2	.061	48.1	.0139	-66.9			295.6	18.2	149.
29	274.0	8680.	19.5	.071	54.9	.0144	-68.2			296.7	13.7	147.
30	265.0	8881.	20.5	.077	57.7	.0149	-68.5			299.1	10.1	147.
31	255.0	9111.	20.4	.080	57.8	.0156	-69.0			301.6	12.6	154.
32	246.0	9326.	21.3	.087	60.3	.0162	-69.7			303.7	12.3	152.
33	237.0	9547.	20.3	.086	58.1	.0168	-71.1			304.9	12.3	149.
34	227.0	9802.	23.1	.102	66.3	.0175	-72.0			307.3	11.1	150.
35	219.0	10012.	26.3	.120	76.1	.0182	-73.3			308.5	11.0	156.
36	210.0	10257.	28.6	.136	82.8	.0191	-74.0			311.1	11.7	161.
37	204.0	10426.	31.6	.155	92.1	.0198	-74.8			312.4	11.2	159.
38	197.2	10623.	34.7	.176	101.4	.0207	-75.5			314.3	9.8	152.
39	190.5	10823.	39.1	.205	114.4	.0217	-75.8			316.9	10.1	147.
40	183.7	11033.	47.7	.260	140.0	.0229	-76.3			319.4	10.5	148.
41	176.9	11250.	59.5	.336	175.0	.0244	-76.8			322.1	16.5	356.
42	170.0	11478.	66.5	.391	195.8	.0263	-77.1			325.3	9.0	141.
43	164.2	11677.	69.2	.421	204.8	.0282	-78.1			326.9	33.1	161.
44	158.8	11868.	70.2	.442	208.0	.0300	-78.4			329.5	7.6	164.
45	153.0	12080.	74.2	.485	219.9	.0322	-78.4			333.0	6.8	169.
46	147.3	12297.	75.6	.513	224.3	.0344	-78.6			336.3	6.3	167.
47	141.8	12513.	77.1	.544	229.8	.0367	-79.6			338.2	8.5	164.
48	136.0	12750.	79.2	.582	237.0	.0393	-80.1			341.4	7.7	155.
49	130.3	12991.	91.9	.705	276.0	.0421	-80.8			344.3	5.3	168.

STATION: SOUTH POLE			LAUNCH DATE: 7 SEP 89 239 Z					ECC SONDE: 4A4400				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	125.6	13198.	82.4	.656	247.3	.0448	-80.8			347.9	7.2	179.
51	120.9	13413.	83.9	.694	253.2	.0473	-81.9			349.8	6.6	164.
52	116.0	13644.	84.6	.729	256.0	.0501	-82.4			352.9	6.2	159.
53	111.2	13880.	83.5	.751	253.5	.0530	-83.0			356.2	6.6	162.
54	107.2	14084.	89.9	.839	273.2	.0555	-83.2			359.6	6.3	167.
55	103.1	14300.	95.5	.926	290.5	.0583	-83.4			363.2	7.5	175.
56	99.1	14520.	99.6	1.005	303.8	.0614	-83.8			366.6	6.8	167.
57	95.0	14754.	100.4	1.057	307.0	.0647	-84.3			369.9	4.9	144.
58	91.2	14980.	99.3	1.089	304.9	.0680	-85.1			372.7	3.3	132.
59	87.7	15195.	99.9	1.139	307.1	.0711	-85.3			376.5	2.1	155.
60	84.0	15432.	108.0	1.286	332.8	.0746	-85.7			380.3	3.2	170.
61	80.3	15679.	101.3	1.262	312.2	.0785	-85.7			385.3	2.4	147.
62	77.0	15909.	89.5	1.162	275.8	.0818	-85.7			389.9	2.5	106.
63	73.7	16149.	108.8	1.476	337.6	.0851	-87.0			392.2	3.3	123.
64	70.2	16414.	107.4	1.530	333.3	.0894	-87.2			397.2	5.8	133.
65	67.0	16668.	109.3	1.631	339.5	.0933	-87.2			402.6	6.4	128.
66	64.2	16900.	111.8	1.741	348.8	.0971	-88.1			405.6	5.3	123.
67	61.6	17125.	125.0	2.029	389.4	.1009	-87.9			410.9	3.6	115.
68	59.0	17359.	129.3	2.192	401.4	.1052	-87.2			417.4	.6	124.
69	56.2	17624.	124.7	2.219	387.5	.1103	-87.4			422.8	1.6	206.
70	53.9	17851.	126.6	2.349	395.0	.1144	-88.1			426.4	2.8	185.
71	51.4	18108.	124.2	2.416	387.0	.1192	-87.9			432.7	3.5	168.
72	49.2	18346.	117.2	2.382	365.1	.1235	-87.9			438.1	3.1	148.
73	47.2	18570.	109.9	2.328	343.9	.1273	-88.7			441.2	4.7	143.
74	45.3	18792.	104.6	2.309	328.5	.1308	-89.4			444.8	5.2	140.
75	43.2	19048.	104.6	2.421	328.3	.1348	-89.2			451.4	5.0	133.
76	41.2	19303.	102.5	2.488	322.0	.1388	-89.4			457.0	6.7	144.
77	39.6	19516.	97.8	2.470	305.9	.1420	-88.5			464.5	6.0	137.
78	38.3	19697.	92.2	2.407	288.1	.1446	-88.3			469.5	3.8	86.
79	36.9	19899.	89.5	2.425	278.9	.1473	-87.9			475.7	2.8	99.
80	35.0	20185.	88.9	2.540	278.4	.1511	-88.7			480.6	3.3	153.
81	33.6	20405.	86.4	2.571	271.0	.1540	-89.2			485.0	3.9	154.
82	32.0	20669.	83.5	2.609	261.7	.1573	-89.0			492.5	7.8	141.
83	30.7	20893.	84.9	2.765	264.5	.1601	-87.9			501.4	6.1	121.
84	29.2	21165.	85.7	2.935	267.1	.1635	-87.9			508.6	4.4	117.
85	27.9	21412.	81.6	2.925	254.3	.1666	-87.9			515.2	5.5	126.
86	26.7	21651.	81.3	3.045	253.4	.1694	-87.9			521.8	4.1	127.
87	25.6	21879.	82.2	3.211	256.3	.1721	-88.1			527.4	3.8	145.
88	24.4	22139.	82.1	3.365	256.2	.1753	-88.1			534.7	3.5	143.
89	23.5	22343.	81.5	3.468	254.4	.1777	-88.1			540.5	5.3	153.
90	22.4	22603.	80.0	3.571	248.5	.1809	-87.2			550.5	6.6	134.
91	21.3	22878.	81.1	3.808	250.5	.1841	-86.2			561.7	8.6	99.
92	20.5	23088.	82.8	4.039	255.2	.1866	-85.7			569.1	7.6	100.
93	19.6	23335.	81.8	4.173	251.7	.1896	-85.5			577.1	7.5	96.
94	18.7	23594.	79.5	4.251	242.4	.1926	-83.8			590.4	10.4	86.
95	17.9	23838.	76.4	4.268	231.8	.1954	-82.8			600.8	6.6	53.
96	17.1	24092.	73.9	4.322	224.3	.1981	-83.0			608.1	3.7	334.
97	16.5	24295.	65.6	3.978	198.3	.2002	-82.1			617.4	6.5	252.
98	15.8	24542.	61.4	3.891	184.4	.2025	-80.8			629.4	6.5	238.
99	15.1	24810.	58.0	3.854	173.3	.2048	-79.9			640.8	4.2	206.
100	14.4	25059.	55.3	3.840	165.3	.2068	-80.1			648.4	5.2	188.
101	13.8	25309.	52.8	3.832	157.5	.2087	-79.8			657.8	7.6	166.
102	13.1	25583.	51.3	3.907	152.5	.2107	-78.9			669.9	9.9	153.
103	12.5	25864.	52.8	4.224	156.0	.2128	-77.6			684.0	4.3	63.
104	11.9	26127.	55.4	4.640	162.8	.2147	-76.5			697.0	11.7	357.

STATION: SOUTH POLE LAUNCH DATE: 7 SEP 89 239 Z ECC SONDE: 4A4400

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	11.6	26318.	55.5	4.805	162.4	.2162	-76.0			705.3	7.7	342.
106	11.2	26512.	49.3	4.414	144.3	.2176	-75.8			712.6	5.5	330.
107	10.8	26717.	43.4	4.026	127.1	.2190	-75.8			719.9	5.7	311.
108	10.4	26930.	40.1	3.859	117.1	.2202	-75.4			729.2	4.3	277.
109	10.0	27153.	36.0	3.600	104.1	.2214	-73.7			743.5	4.3	277.

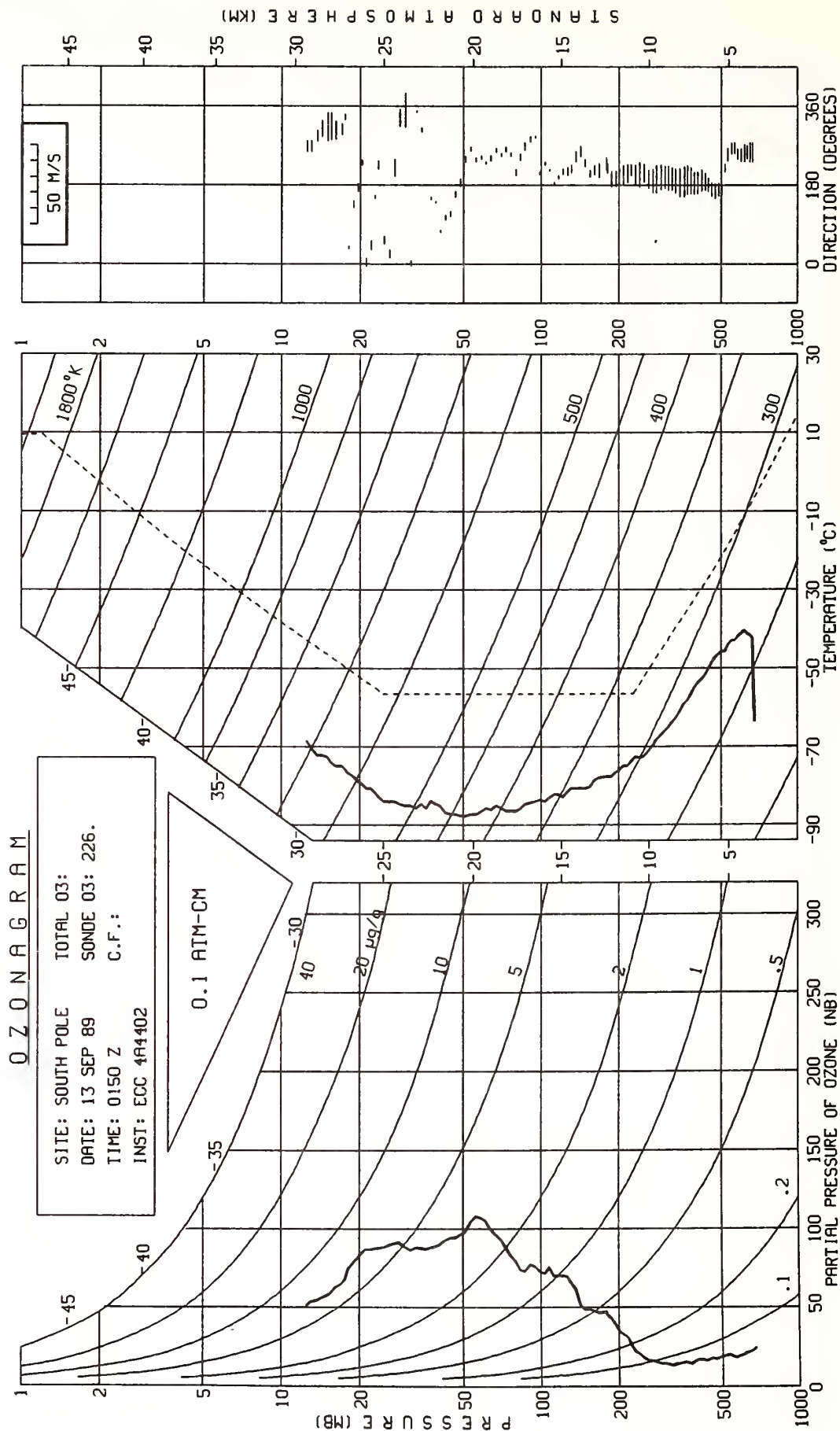
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARs

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
21.9	19.1	53.4	99.6	108.4	80.5	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110107098903			99		ECC TOTAL O3 FROM SONDE DATA 251
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110207098903	685	20-69		500	21-50222 5 300 15-65144 17 200 33-75155 10
1110307098903	150	75-79168	7	100	99-84169 7 70108-87133 6 50120-88155 3
1110407098903	30	85-88119	520.0	82-86 98	8 659 21-48256 29 581 23-46250 10
1110507098903	170	67-77141	9	136	79-80155 8 130 92-81168 5 126 82-81179 7
1110607098903	111	84-83162	7	84108-86170	3 77 90-86106 3 74109-87123 3
1110707098903	64	112-88123	5	59129-87124	1 45105-89140 523.5 82-88153 5
1110807098903	13.8	53-80166	811.6	56-76342	810.0 36-74277 4



STATION: SOUTH POLE LAUNCH DATE: 13 SEP 89 150 Z ECC SONDE: 4A4402
 SURFACE CONDITIONS: PRESSURE 678.1 MB, TEMPERATURE -63.8 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.2 ORD; HUM 33.0 % AT 77.0 ORD; TBOX 24.0 C AT 70.9 ORD;
 O3 ORD ZERO 29.4, BKGND 29.6, CAL 67.5; O3 BKGND 0.028 MICROAMP; FLOW RATE 27.2 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 226.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	678.1	2835.	24.4	.036	67.2	.0000	-63.8			233.9		
1	664.0	2970.	23.4	.035	58.5	.0004	-42.6			259.2	11.9	255.
2	650.0	3115.	22.4	.034	56.0	.0008	-41.8			261.7	11.9	255.
3	634.0	3284.	21.6	.034	53.7	.0012	-41.5			263.9	8.2	255.
4	618.0	3457.	21.1	.034	52.5	.0017	-40.7			266.8	10.6	253.
5	600.0	3658.	19.7	.033	49.1	.0021	-41.4			268.2	8.1	249.
6	583.0	3853.	19.4	.033	48.4	.0026	-42.1			269.6	6.8	251.
7	566.0	4053.	18.4	.033	46.2	.0030	-43.2			270.6	7.4	265.
8	550.0	4246.	19.2	.035	48.3	.0034	-43.2			272.8	6.8	264.
9	533.0	4457.	20.1	.038	50.6	.0039	-44.4			273.8	7.7	250.
10	519.0	4635.	19.6	.038	49.9	.0043	-46.0			274.0	4.9	218.
11	502.0	4856.	18.8	.037	47.7	.0048	-46.0			276.6	6.1	169.
12	488.0	5044.	18.3	.038	46.7	.0052	-46.7			277.9	8.1	170.
13	473.0	5251.	17.5	.037	44.7	.0057	-47.6			279.3	9.4	166.
14	460.0	5434.	17.8	.039	45.9	.0061	-48.9			279.9	8.8	170.
15	446.0	5637.	16.9	.038	43.9	.0065	-50.4			280.5	8.7	180.
16	433.0	5829.	16.5	.038	43.1	.0069	-52.0			280.9	11.1	188.
17	420.0	6026.	16.9	.040	44.4	.0073	-53.1			282.0	13.5	190.
18	406.0	6244.	16.9	.042	44.6	.0077	-54.0			283.5	13.6	185.
19	393.0	6452.	16.0	.041	42.5	.0081	-55.3			284.5	14.3	184.
20	381.0	6649.	14.2	.037	38.0	.0085	-57.0			284.8	16.7	190.
21	370.0	6834.	15.1	.041	40.5	.0088	-58.5			285.2	18.4	192.
22	359.0	7024.	15.5	.043	41.9	.0092	-59.2			286.7	18.8	187.
23	346.0	7254.	14.6	.042	39.8	.0097	-61.2			287.1	18.3	186.
24	333.0	7491.	14.2	.043	39.0	.0101	-63.0			287.7	15.8	190.
25	322.0	7697.	13.3	.041	36.7	.0105	-64.0			289.1	14.4	194.
26	312.0	7889.	14.1	.045	39.2	.0108	-65.4			289.8	15.2	196.
27	302.0	8087.	14.5	.048	40.5	.0111	-66.2			291.4	14.4	198.
28	292.0	8291.	14.5	.050	40.7	.0115	-67.2			292.7	15.9	198.
29	281.0	8522.	15.3	.054	43.3	.0120	-68.5			294.1	17.3	194.
30	272.0	8716.	16.1	.059	45.8	.0124	-70.0			294.6	14.9	190.
31	261.0	8961.	16.2	.062	46.4	.0129	-71.4			296.1	11.6	194.
32	251.0	9191.	17.9	.071	51.4	.0134	-72.6			297.7	11.4	208.
33	242.0	9405.	20.4	.084	58.8	.0139	-73.1			300.1	15.9	204.
34	233.0	9628.	22.1	.095	63.7	.0145	-72.8			303.7	12.0	205.
35	224.0	9858.	26.7	.119	77.4	.0152	-74.1			305.3	7.6	214.
36	217.0	10043.	30.9	.142	90.0	.0159	-75.1			306.4	11.1	206.
37	209.0	10261.	32.9	.157	95.8	.0169	-75.1			309.8	12.0	204.
38	201.0	10486.	34.9	.174	102.4	.0179	-76.2			311.6	10.2	199.
39	194.6	10673.	39.3	.202	115.4	.0188	-76.7			313.6	9.9	195.
40	187.7	10880.	43.0	.229	127.0	.0199	-77.8			315.0	9.6	194.
41	180.6	11100.	45.2	.250	133.7	.0212	-77.8			318.5	5.7	218.
42	178.9	11155.	47.0	.263	138.8	.0216	-77.8			319.4	7.6	229.
43	167.3	11538.	46.6	.279	137.8	.0241	-78.1			325.1	8.8	214.
44	160.9	11760.	47.7	.296	141.6	.0255	-78.7			327.8	5.7	214.
45	154.5	11991.	48.7	.315	146.1	.0270	-80.5			328.5	4.6	207.
46	148.1	12229.	48.7	.329	146.3	.0286	-80.8			332.0	4.8	231.
47	142.3	12454.	51.7	.363	155.1	.0302	-80.8			335.8	6.7	257.
48	136.6	12685.	61.7	.452	185.0	.0319	-80.8			339.7	6.3	245.
49	131.3	12908.	65.6	.500	197.0	.0338	-80.8			343.6	5.4	217.

STATION: SOUTH POLE				LAUNCH DATE: 13 SEP 89				150 Z	ECC	SONDE: 4A4402			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	126.5	13117.	69.6	.550	209.9	.0358	-81.7			345.6	5.2	212.	
51	121.5	13342.	70.1	.577	212.8	.0380	-83.1			347.2	3.6	211.	
52	116.7	13567.	70.1	.601	212.1	.0402	-82.4			352.4	2.3	198.	
53	112.1	13792.	70.0	.624	211.7	.0424	-82.4			356.5	2.2	183.	
54	107.9	14005.	75.2	.697	228.4	.0445	-83.1			359.1	1.0	214.	
55	103.5	14236.	71.5	.691	218.2	.0470	-84.1			361.5	2.2	229.	
56	99.0	14482.	72.8	.735	221.9	.0495	-83.7			366.8	1.8	207.	
57	94.9	14717.	76.0	.801	232.0	.0519	-84.1			370.5	1.1	290.	
58	90.8	14961.	77.2	.850	236.1	.0545	-84.4			374.6	3.4	285.	
59	86.6	15223.	72.8	.841	223.0	.0574	-84.8			378.9	4.8	269.	
60	83.1	15450.	73.8	.888	227.6	.0597	-85.9			381.2	4.1	244.	
61	79.9	15665.	79.1	.990	245.0	.0620	-86.6			383.9	3.7	209.	
62	76.4	15909.	83.1	1.088	257.4	.0648	-86.6			388.9	2.3	250.	
63	73.1	16150.	88.5	1.211	273.9	.0677	-86.6			393.8	2.7	262.	
64	70.1	16380.	93.1	1.328	287.0	.0707	-85.9			400.2	1.9	250.	
65	67.0	16628.	96.2	1.436	295.5	.0740	-85.2			407.0	2.8	260.	
66	64.0	16880.	99.4	1.553	307.2	.0775	-86.3			409.9	3.3	241.	
67	61.2	17125.	104.9	1.714	323.4	.0811	-85.9			416.0	1.2	231.	
68	58.7	17353.	106.8	1.819	330.7	.0845	-86.6			419.3	2.3	243.	
69	56.0	17610.	108.0	1.929	335.8	.0884	-87.4			423.2	2.6	238.	
70	53.3	17879.	104.0	1.951	323.2	.0925	-87.4			429.2	2.4	262.	
71	51.0	18119.	97.8	1.918	304.8	.0961	-87.8			433.7	3.6	239.	
72	48.6	18380.	96.2	1.979	299.6	.0998	-87.8			439.7	4.9	185.	
73	46.6	18609.	94.3	2.024	293.1	.1029	-87.4			446.0	3.5	159.	
74	44.6	18847.	94.2	2.112	292.9	.1061	-87.4			451.6	3.1	114.	
75	42.7	19084.	92.8	2.173	287.9	.1093	-87.0			458.3	3.4	106.	
76	40.7	19347.	90.0	2.211	276.3	.1128	-85.2			469.3	1.9	74.	
77	39.1	19568.	88.7	2.269	272.0	.1156	-84.8			475.6	.7	141.	
78	37.5	19799.	88.1	2.349	269.0	.1185	-84.1			483.1	1.6	149.	
79	36.0	20024.	87.1	2.419	268.6	.1213	-85.9			484.1	.2	21.	
80	34.4	20274.	87.6	2.547	268.5	.1245	-84.8			493.3	2.5	306.	
81	32.9	20519.	88.1	2.678	271.5	.1276	-85.9			496.7	1.1	348.	
82	31.2	20811.	86.5	2.772	265.5	.1312	-85.2			506.3	3.4	1.	
83	29.7	21082.	88.8	2.990	272.7	.1346	-85.2			513.5	21.9	351.	
84	28.3	21348.	91.4	3.230	280.1	.1380	-84.8			521.6	11.2	334.	
85	27.1	21588.	90.8	3.351	277.2	.1411	-84.1			530.1	10.9	219.	
86	25.9	21839.	89.8	3.467	274.2	.1443	-84.1			537.0	5.4	22.	
87	24.7	22101.	88.2	3.571	269.5	.1476	-84.1			544.3	5.1	53.	
88	23.4	22402.	87.9	3.756	266.6	.1514	-82.7			556.8	4.9	226.	
89	22.7	22572.	87.3	3.846	263.3	.1535	-81.7			564.5	2.2	153.	
90	22.0	22748.	87.0	3.955	261.1	.1557	-80.8			572.5	5.3	41.	
91	21.1	22983.	87.0	4.123	261.1	.1585	-80.8			579.3	5.2	3.	
92	20.3	23202.	84.5	4.163	252.1	.1611	-79.6			589.5	3.2	231.	
93	19.6	23401.	81.2	4.143	241.5	.1634	-79.0			597.2	4.9	174.	
94	18.8	23639.	78.3	4.165	231.5	.1660	-77.8			608.0	4.6	136.	
95	18.0	23888.	74.3	4.128	218.7	.1686	-77.0			618.2	1.3	37.	
96	17.5	24050.	67.6	3.863	197.9	.1702	-75.9			626.7	3.7	335.	
97	17.0	24218.	65.1	3.829	189.7	.1717	-75.1			634.4	7.0	308.	
98	16.1	24534.	62.7	3.894	182.7	.1745	-75.1			644.3	11.9	305.	
99	15.5	24754.	59.6	3.845	173.2	.1763	-74.3			653.9	17.5	314.	
100	15.0	24946.	57.8	3.853	166.6	.1779	-72.8			665.0	17.8	313.	
101	14.3	25227.	56.2	3.930	161.5	.1800	-72.4			675.8	10.5	309.	
102	13.7	25479.	54.5	3.978	156.8	.1819	-72.4			684.1	6.8	292.	
103	13.0	25789.	53.6	4.123	152.5	.1841	-70.3			701.7	7.2	269.	
104	12.5	26023.	51.3	4.104	144.7	.1858	-68.7			715.0	7.2	269.	

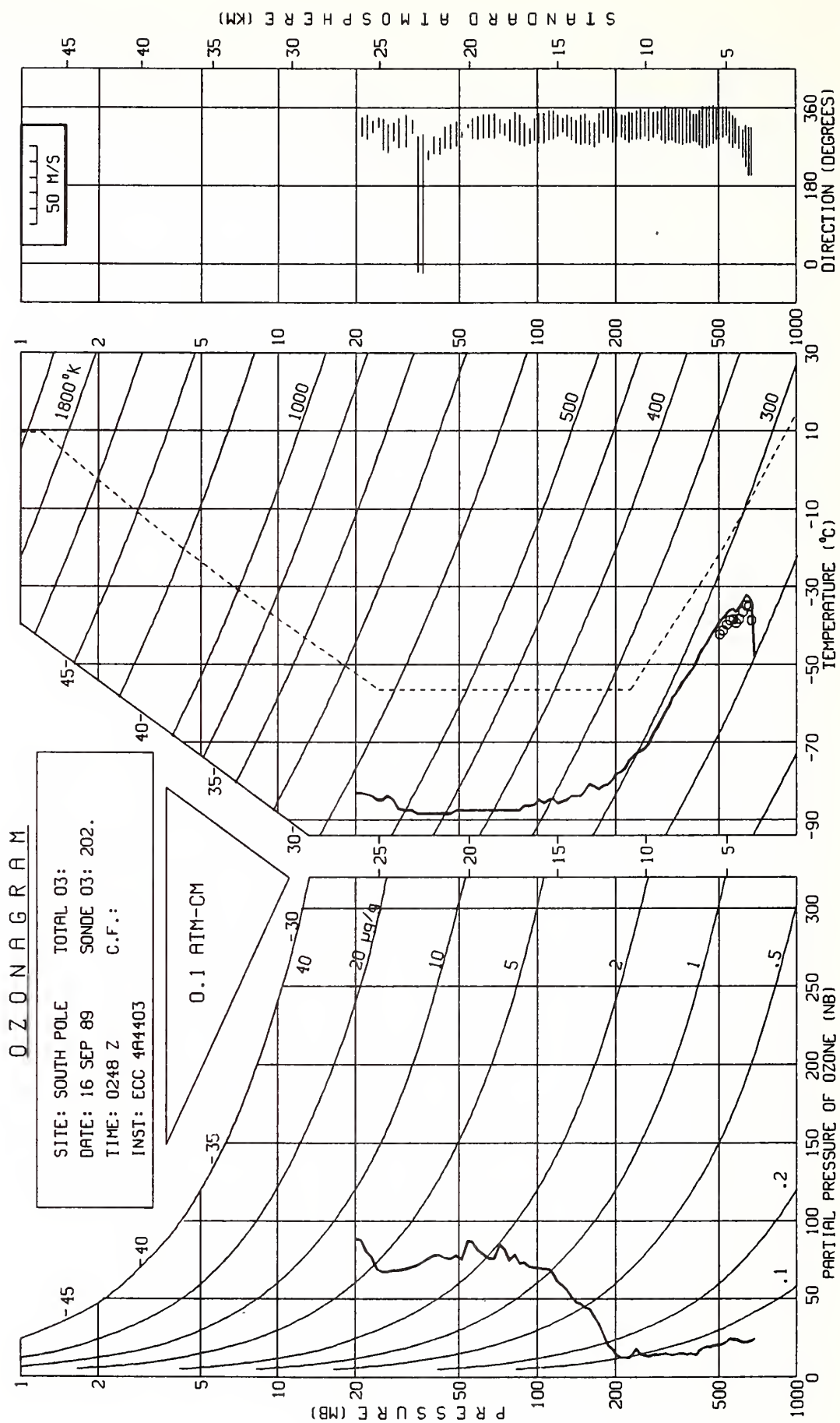
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
20.4	15.6	42.0	78.6	94.5	81.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110113098902			99		ECC TOTAL O3 FROM SONDE DATA 226
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110213098902	678	24-64		500	19-46169 6 300 15-66198 15 200 36-76198 10
1110313098902	150	49-81224	5	100	73-84212 2 70 93-86250 2 50 97-88217 4
1110413098902	30	88-85280	1820.0	83-79207	4 664 23-43255 12 618 21-41253 11
1110513098902	251	18-73208	11	179	47-78229 8 127 70-82212 5 83 74-86244 4
1110613098902		56108-87238	3	38	88-84149 2 36 87-86 21 024.7 88-84 53 5
1110713098902	13.7	55-72292	712.5	51-69269	7



STATION: SOUTH POLE LAUNCH DATE: 16 SEP 89 248 Z ECC SONDE: 4A4403
 SURFACE CONDITIONS: PRESSURE 689.7 MB, TEMPERATURE -48.2 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 25.0 C AT 71.4 ORD;
 O3 ORD ZERO 31.1, BKGND 31.6, CAL 66.7; O3 BKGND 0.074 MICROAMP; FLOW RATE 28.1 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 202.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	689.7	2835.	24.6	.036	63.0	.0000	-48.2			250.2		
1	670.0	3032.	23.1	.034	55.9	.0006	-34.2	-38.9	63.3	268.0	30.9	260.
2	654.0	3202.	22.7	.035	54.5	.0010	-32.8	-35.3	80.1	271.3	30.9	260.
3	639.0	3365.	22.3	.035	53.5	.0014	-32.4	-35.0	79.2	273.6	26.2	273.
4	620.0	3577.	22.3	.036	53.9	.0019	-33.9	-36.7	76.9	274.3	17.6	278.
5	601.0	3795.	22.9	.038	55.6	.0025	-35.5	-38.5	75.6	274.9	14.1	292.
6	583.0	4006.	23.9	.041	58.2	.0030	-36.7	-39.6	75.9	275.9	16.2	308.
7	569.0	4175.	23.9	.042	58.2	.0035	-36.0	-38.6	78.5	278.6	20.7	306.
8	552.0	4385.	24.3	.044	59.2	.0040	-36.2	-38.9	77.6	280.9	20.7	316.
9	537.0	4576.	22.9	.043	55.9	.0046	-37.1	-40.0	75.7	281.9	18.5	330.
10	520.0	4798.	21.4	.041	52.7	.0051	-38.3	-41.5	73.2	283.1	20.0	328.
11	504.0	5013.	20.5	.041	50.5	.0057	-39.1	-42.5	71.4	284.6	21.7	326.
12	491.0	5191.	20.5	.042	50.9	.0061	-40.6			284.9	19.9	324.
13	478.0	5373.	20.0	.042	50.0	.0065	-41.7			285.7	24.4	322.
14	462.0	5603.	19.1	.041	47.9	.0070	-43.3			286.6	25.7	319.
15	449.0	5795.	19.5	.043	49.4	.0075	-44.8			287.0	25.9	316.
16	433.0	6037.	18.5	.043	47.2	.0080	-46.3			288.2	26.6	316.
17	421.0	6223.	17.0	.040	43.6	.0084	-47.7			288.6	22.2	315.
18	411.0	6381.	14.2	.035	36.5	.0087	-49.4			288.5	17.9	314.
19	400.0	6558.	14.6	.037	38.1	.0090	-51.1			288.6	17.6	315.
20	388.0	6756.	15.1	.039	39.5	.0093	-52.1			289.7	21.1	317.
21	376.0	6959.	14.6	.039	38.4	.0097	-53.4			290.6	22.6	320.
22	363.0	7185.	15.1	.042	39.9	.0101	-54.7			291.8	22.8	317.
23	352.0	7381.	15.1	.043	40.3	.0105	-56.2			292.4	21.4	317.
24	342.0	7563.	14.6	.043	39.2	.0108	-57.7			292.8	22.1	321.
25	331.0	7769.	14.1	.043	38.1	.0112	-58.9			293.9	19.8	321.
26	321.0	7961.	14.6	.045	39.8	.0115	-61.0			293.5	19.6	321.
27	311.0	8157.	15.1	.049	41.3	.0119	-62.5			294.1	23.5	321.
28	301.0	8357.	14.6	.049	40.4	.0123	-64.3			294.4	20.9	324.
29	291.0	8563.	14.2	.049	39.5	.0127	-66.3			294.4	14.5	326.
30	281.0	8774.	14.2	.051	39.9	.0131	-67.9			294.9	15.8	321.
31	270.0	9013.	13.2	.049	37.7	.0135	-70.6			294.5	19.7	321.
32	260.0	9236.	13.8	.053	39.4	.0139	-71.8			295.9	15.7	323.
33	250.0	9467.	14.7	.059	42.3	.0143	-72.5			298.2	19.1	323.
34	241.0	9682.	18.0	.075	52.0	.0148	-73.0			300.6	18.5	321.
35	232.0	9905.	14.1	.061	40.9	.0153	-74.2			302.0	17.1	318.
36	225.0	10083.	12.2	.054	35.5	.0156	-75.2			303.1	19.4	316.
37	218.0	10265.	12.7	.058	37.2	.0159	-76.9			303.3	15.9	315.
38	211.0	10452.	12.7	.060	37.5	.0162	-77.7			304.9	14.4	318.
39	202.0	10702.	14.1	.070	41.9	.0167	-78.3			307.8	14.9	321.
40	195.0	10902.	18.0	.092	53.6	.0171	-79.7			308.6	22.1	321.
41	187.6	11121.	20.3	.108	61.0	.0176	-81.0			310.0	18.9	326.
42	180.2	11347.	27.3	.151	82.1	.0183	-81.3			313.1	14.5	327.
43	173.3	11566.	33.7	.194	101.9	.0192	-82.3			315.0	18.9	313.
44	166.5	11790.	38.7	.232	116.7	.0203	-81.6			319.7	15.7	298.
45	159.9	12017.	43.7	.273	131.2	.0215	-81.0			324.5	15.2	303.
46	153.5	12246.	44.5	.290	134.8	.0229	-82.6			325.5	18.8	312.
47	147.7	12460.	47.0	.318	143.6	.0243	-84.0			326.8	18.6	309.
48	141.9	12682.	47.8	.337	146.0	.0258	-84.0			330.5	14.9	305.
49	135.9	12922.	51.7	.380	157.9	.0274	-84.0			334.6	14.5	312.

STATION: SOUTH POLE			LAUNCH DATE: 16 SEP 89 248 Z				ECC		SONDE: 4A4403			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	130.5	13146.	56.0	.429	171.8	.0291	-85.0			336.6	13.8	320.
51	125.2	13374.	58.7	.469	180.6	.0309	-85.4			340.0	9.0	320.
52	120.0	13607.	61.3	.511	188.8	.0329	-85.8			343.4	13.7	320.
53	115.2	13832.	66.2	.575	202.9	.0349	-84.7			349.5	17.9	320.
54	110.8	14047.	69.1	.624	212.1	.0369	-85.0			352.7	18.5	320.
55	106.1	14285.	69.4	.654	213.9	.0393	-85.8			355.7	19.3	313.
56	101.7	14518.	69.8	.686	214.1	.0416	-85.0			361.5	18.8	313.
57	97.6	14744.	70.1	.718	216.3	.0438	-86.2			363.6	13.8	310.
58	93.4	14985.	70.7	.757	218.7	.0462	-86.5			367.4	9.8	294.
59	89.3	15230.	73.3	.821	226.9	.0488	-86.5			372.2	14.7	298.
60	85.6	15461.	73.0	.853	227.2	.0512	-87.7			374.3	19.1	309.
61	81.9	15701.	78.5	.958	244.4	.0538	-87.7			379.1	19.4	315.
62	78.3	15945.	74.9	.957	233.3	.0565	-87.7			384.0	13.7	309.
63	75.0	16179.	81.9	1.092	254.9	.0591	-87.7			388.7	7.5	310.
64	71.8	16415.	85.0	1.184	264.5	.0619	-87.7			393.6	8.8	318.
65	68.3	16687.	75.9	1.111	236.4	.0651	-87.7			399.2	15.5	318.
66	65.0	16956.	76.0	1.169	236.7	.0681	-87.7			404.9	14.8	318.
67	62.0	17213.	78.8	1.271	245.2	.0709	-87.7			410.4	14.7	318.
68	59.0	17482.	81.8	1.386	254.7	.0740	-87.7			416.3	14.9	314.
69	56.2	17746.	86.8	1.544	270.2	.0771	-87.7			422.1	13.1	313.
70	53.9	17973.	87.1	1.616	271.2	.0799	-87.7			427.2	2.0	318.
71	51.2	18252.	75.4	1.473	234.7	.0833	-87.7			433.5	3.7	299.
72	48.7	18524.	78.1	1.604	243.3	.0863	-87.7			439.8	16.2	301.
73	46.1	18821.	75.8	1.644	237.0	.0896	-88.5			444.7	15.9	295.
74	44.0	19073.	76.6	1.741	239.6	.0924	-88.5			450.7	14.2	292.
75	42.0	19325.	78.2	1.862	244.6	.0952	-88.5			456.7	10.5	272.
76	40.0	19589.	78.0	1.950	244.0	.0981	-88.5			463.1	11.1	274.
77	38.0	19866.	75.9	1.997	237.2	.1013	-88.5			470.0	5.5	251.
78	36.2	20129.	73.7	2.036	230.4	.1041	-88.5			476.5	89.1	139.
79	34.6	20373.	71.7	2.072	224.3	.1067	-88.5			482.7	87.4	138.
80	32.9	20646.	70.4	2.140	219.2	.1095	-87.7			491.9	8.9	317.
81	31.1	20952.	69.3	2.228	215.8	.1126	-87.7			499.9	20.0	307.
82	29.2	21295.	68.6	2.349	213.2	.1160	-87.3			510.1	18.6	302.
83	27.9	21544.	68.6	2.459	210.6	.1184	-85.0			523.1	11.9	305.
84	26.5	21828.	67.5	2.547	205.9	.1212	-84.0			533.8	18.4	289.
85	25.3	22084.	67.5	2.668	207.1	.1236	-85.0			537.9	20.0	299.
86	24.3	22307.	69.0	2.840	211.8	.1258	-85.0			544.1	6.0	327.
87	23.1	22587.	76.6	3.316	233.8	.1286	-84.0			555.2	7.2	316.
88	22.0	22857.	80.5	3.659	245.3	.1316	-83.6			564.0	15.9	316.
89	21.0	23116.	87.9	4.186	267.3	.1346	-83.3			572.6	12.0	316.
90	19.9	23415.	88.4	4.442	268.7	.1382	-83.3			581.5	12.0	316.

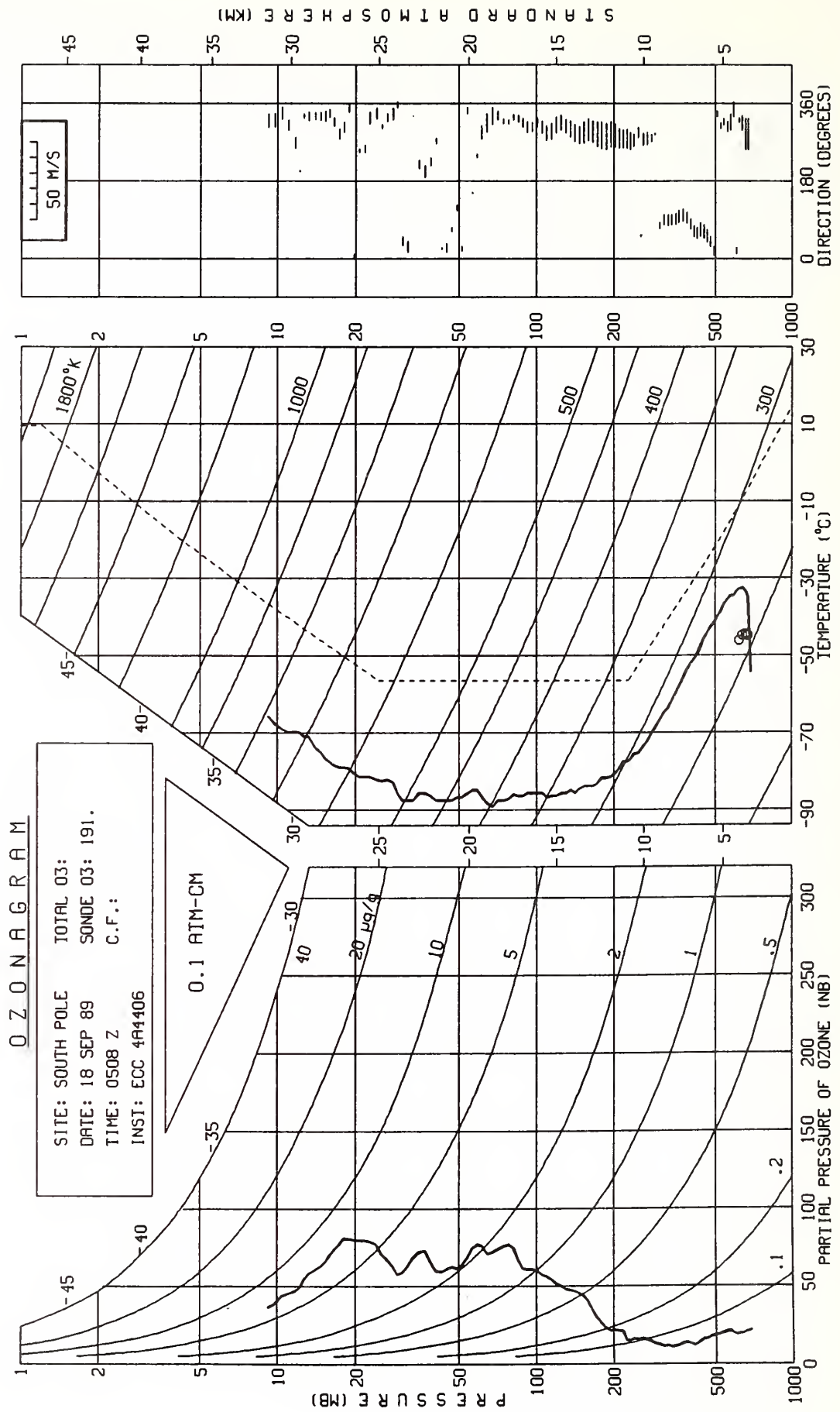
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
22.8	15.6	30.5	72.1	76.6	999.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110116098903			99		ECC TOTAL O3 FROM SONDE DATA 202
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPP	P3TTTDDDDFFFP	P3TTTDDDDFFFP P3TTTDDDDFFFP
1110216098903	690	25-48		500	21-40325 21 300 15-64324 20 200 15-79321 17
1110316098903	150	46-83310	19	100	70-85312 17 70 80-88318 12 50 77-88300 10
1110416098903	30	69-87304	1920.0	88-83316	12 670 23-34260 31 654 23-33260 31
1110516098903	270	13-71321	20	65	76-88318 15 54 87-88318 226.5 68-84289 18
1110616098903	19.9	88-83316	12		



STATION: SOUTH POLE LAUNCH DATE: 18 SEP 89 508 Z ECC SONDE: 4A4406
 SURFACE CONDITIONS: PRESSURE 692.1 MB, TEMPERATURE -54.7 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 27.0 C AT 71.9 ORD;
 O3 ORD ZERO 28.5, BKGND 28.9, CAL 61.8; O3 BKGND 0.063 MICROAMP; FLOW RATE 26.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 191.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	692.1	2835.	21.7	.031	57.3	.0000	-54.7			242.7		
1	673.0	3022.	21.2	.032	51.5	.0005	-35.1	-45.1	35.7	266.6	20.4	290.
2	658.0	3180.	20.7	.031	50.0	.0009	-33.6	-44.7	32.2	270.0	20.4	290.
3	640.0	3375.	19.7	.031	47.2	.0013	-32.8	-45.0	29.1	273.0	9.1	315.
4	621.0	3587.	19.6	.032	47.2	.0018	-33.1	-46.4	25.4	275.1	2.9	322.
5	605.0	3770.	18.9	.031	45.6	.0022	-33.8			276.4	4.1	18.
6	590.0	3946.	19.5	.033	47.3	.0025	-34.8			277.1	9.8	347.
7	572.0	4162.	21.1	.037	51.1	.0030	-34.8			279.6	10.5	317.
8	558.0	4335.	21.1	.038	51.3	.0034	-35.8			280.5	6.8	306.
9	540.0	4562.	20.1	.037	49.3	.0040	-37.1			281.5	4.5	318.
10	525.0	4756.	19.6	.037	48.4	.0044	-38.9			281.7	3.8	308.
11	510.0	4954.	18.7	.037	46.3	.0048	-40.2			282.3	3.9	337.
12	493.0	5185.	18.2	.037	45.4	.0053	-41.9			283.1	5.5	17.
13	479.0	5379.	17.6	.037	44.1	.0057	-43.0			284.0	6.7	40.
14	464.0	5593.	16.0	.034	40.4	.0061	-44.4			284.9	8.2	52.
15	450.0	5798.	16.0	.036	40.6	.0065	-46.1			285.2	9.0	63.
16	437.0	5992.	14.4	.033	36.9	.0069	-48.2			285.0	8.4	67.
17	425.0	6175.	12.9	.030	33.3	.0072	-50.0			285.0	7.3	60.
18	413.0	6361.	11.9	.029	30.9	.0075	-51.2			285.8	7.0	63.
19	400.0	6569.	12.9	.032	33.7	.0078	-52.4			286.8	7.1	80.
20	387.0	6781.	13.8	.036	36.4	.0081	-54.0			287.4	7.5	95.
21	373.0	7017.	13.3	.036	35.4	.0085	-56.3			287.4	7.9	101.
22	360.0	7241.	11.9	.033	31.9	.0089	-58.4			287.6	7.8	97.
23	349.9	7419.	11.3	.032	30.7	.0091	-60.1			287.6	7.0	92.
24	337.0	7653.	10.8	.032	29.5	.0094	-62.0			288.2	6.9	90.
25	326.0	7857.	11.8	.036	32.5	.0097	-63.9			288.3	7.4	89.
26	314.0	8086.	11.3	.036	31.4	.0101	-65.2			289.5	6.9	90.
27	302.0	8322.	12.3	.041	34.4	.0104	-67.1			290.1	4.3	76.
28	290.0	8566.	13.2	.046	37.5	.0108	-69.2			290.4	1.0	290.
29	282.0	8732.	14.3	.051	40.7	.0111	-70.4			291.2	4.9	280.
30	271.0	8968.	15.4	.057	44.2	.0116	-72.5			291.4	8.1	279.
31	262.0	9165.	16.2	.062	46.9	.0120	-73.7			292.4	7.9	277.
32	249.9	9440.	15.7	.063	45.8	.0126	-75.5			293.7	6.5	293.
33	240.0	9674.	16.2	.068	47.4	.0131	-75.8			296.8	8.1	274.
34	233.0	9845.	15.1	.065	44.6	.0134	-77.1			297.2	11.5	273.
35	225.0	10045.	15.2	.068	44.8	.0138	-77.7			299.3	12.3	278.
36	218.0	10226.	21.2	.097	62.6	.0143	-77.7			302.0	11.7	278.
37	210.0	10439.	21.2	.101	63.2	.0149	-79.4			302.6	13.0	279.
38	203.0	10631.	21.7	.107	65.0	.0154	-80.7			303.6	15.2	286.
39	194.7	10866.	21.2	.109	63.9	.0162	-81.6			305.7	16.9	289.
40	187.0	11092.	23.0	.123	69.4	.0168	-81.9			308.7	16.8	284.
41	179.1	11334.	26.5	.148	80.1	.0176	-81.9			312.6	17.4	286.
42	172.4	11546.	30.0	.174	91.3	.0185	-83.3			313.8	15.9	289.
43	165.9	11760.	34.9	.210	106.5	.0194	-84.0			316.1	13.9	295.
44	159.2	11988.	40.5	.254	123.7	.0205	-84.0			319.8	14.4	299.
45	153.1	12205.	44.0	.287	134.3	.0218	-84.0			323.4	13.6	293.
46	147.3	12418.	45.4	.308	139.0	.0231	-84.7			325.8	11.4	287.
47	141.8	12628.	46.7	.329	143.9	.0245	-85.8			327.4	11.4	292.
48	136.1	12853.	47.5	.349	145.8	.0260	-85.0			332.6	10.6	301.
49	130.8	13072.	47.8	.365	147.4	.0275	-85.8			335.1	9.3	307.

STATION: SOUTH POLE			LAUNCH DATE: 18 SEP 89				508 Z	ECC	SONDE: 4A4406			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	125.1	13316.	50.2	.401	154.7	.0292	-85.8			339.4	9.8	316.
51	119.6	13563.	51.8	.433	160.3	.0309	-86.5			342.4	10.7	310.
52	114.9	13782.	54.1	.471	167.4	.0326	-86.5			346.3	10.6	295.
53	110.1	14015.	56.2	.510	174.1	.0344	-86.9			349.8	9.3	292.
54	105.4	14253.	57.3	.544	176.7	.0363	-85.8			356.4	7.9	304.
55	100.9	14493.	59.9	.594	184.5	.0383	-85.8			360.9	5.4	316.
56	96.6	14732.	61.1	.633	188.2	.0403	-85.8			365.4	6.0	306.
57	92.2	14988.	61.0	.662	188.0	.0426	-85.8			370.3	7.6	306.
58	88.5	15212.	61.3	.693	189.6	.0445	-86.5			373.1	5.6	315.
59	85.0	15433.	66.8	.786	206.8	.0465	-86.5			377.4	4.7	325.
60	81.4	15669.	74.7	.918	230.6	.0488	-86.2			382.9	3.9	328.
61	78.0	15902.	77.0	.987	239.1	.0513	-87.3			385.2	2.6	317.
62	74.3	16167.	76.0	1.023	236.5	.0543	-87.7			389.8	3.1	319.
63	70.6	16444.	74.1	1.050	230.6	.0573	-87.7			395.5	6.3	333.
64	67.4	16695.	72.2	1.071	226.8	.0600	-89.4			397.2	11.4	331.
65	64.2	16957.	71.0	1.106	222.1	.0627	-88.5			404.6	12.1	315.
66	61.3	17208.	76.1	1.241	236.0	.0653	-86.9			413.5	8.4	293.
67	58.9	17427.	77.1	1.309	236.6	.0677	-85.0			422.5	2.1	238.
68	56.3	17676.	75.0	1.332	230.1	.0704	-85.0			428.0	.9	152.
69	53.9	17916.	68.8	1.276	212.1	.0729	-85.8			431.7	4.1	344.
70	51.3	18186.	63.4	1.236	196.6	.0755	-86.9			435.1	3.2	23.
71	49.1	18425.	61.6	1.255	190.9	.0777	-86.9			440.6	3.7	118.
72	47.0	18663.	62.7	1.334	195.2	.0798	-87.7			444.2	2.5	67.
73	44.9	18912.	61.1	1.361	190.3	.0820	-87.7			450.1	5.4	24.
74	43.0	19146.	59.5	1.384	185.2	.0840	-87.7			455.7	1.1	23.
75	41.0	19405.	59.9	1.461	186.5	.0862	-87.7			461.9	3.9	274.
76	39.0	19678.	65.8	1.687	203.7	.0886	-86.5			471.5	4.8	225.
77	37.1	19951.	72.8	1.962	224.4	.0913	-85.8			480.3	7.7	202.
78	35.2	20240.	72.2	2.051	222.6	.0943	-85.8			487.5	5.4	219.
79	33.4	20526.	68.4	2.048	212.8	.0972	-87.7			489.8	.3	331.
80	31.8	20793.	63.0	1.981	196.1	.0998	-87.7			496.7	7.1	27.
81	30.4	21037.	59.1	1.944	184.1	.1019	-87.7			503.1	5.9	40.
82	29.0	21295.	58.0	2.000	178.8	.1041	-85.8			515.3	4.0	358.
83	27.9	21509.	62.9	2.254	191.0	.1059	-82.9			528.9	7.5	336.
84	26.5	21796.	67.5	2.547	204.2	.1085	-82.3			538.6	5.5	328.
85	25.2	22077.	70.5	2.798	213.8	.1112	-82.6			545.5	2.9	306.
86	24.0	22350.	77.4	3.225	234.0	.1139	-82.3			554.1	6.9	337.
87	22.6	22686.	79.1	3.500	238.4	.1176	-81.6			565.6	7.3	326.
88	21.7	22914.	79.7	3.673	240.2	.1201	-81.6			572.2	5.1	255.
89	20.6	23206.	79.8	3.874	240.4	.1233	-81.6			580.8	2.7	250.
90	19.7	23457.	80.0	4.061	240.0	.1262	-80.7			591.2	3.4	4.
91	18.8	23722.	80.6	4.287	240.2	.1291	-79.4			602.9	5.9	350.
92	18.0	23969.	80.8	4.489	240.3	.1319	-79.1			611.4	5.9	304.
93	17.3	24194.	77.0	4.451	229.1	.1344	-79.1			618.4	6.9	289.
94	16.6	24429.	73.7	4.440	218.5	.1368	-78.6			627.6	5.5	317.
95	15.9	24675.	69.9	4.396	206.5	.1393	-77.7			638.2	5.1	337.
96	15.3	24896.	65.8	4.301	193.4	.1414	-76.9			648.0	6.0	331.
97	14.7	25127.	63.1	4.293	184.2	.1435	-75.2			660.8	5.6	331.
98	14.0	25411.	60.9	4.350	176.5	.1458	-74.0			674.5	4.9	331.
99	13.2	25756.	58.4	4.424	167.0	.1486	-71.1			695.9	5.8	331.
100	12.6	26032.	54.1	4.294	154.5	.1507	-71.1			705.2	3.0	331.
101	12.2	26223.	49.4	4.049	140.5	.1521	-70.1			715.0	.6	203.
102	11.7	26472.	47.1	4.026	133.7	.1537	-69.9			724.4	7.4	269.
103	11.0	26839.	45.5	4.136	129.4	.1559	-70.1			736.5	6.9	310.
104	10.4	27174.	44.1	4.240	124.7	.1579	-69.2			751.7	7.8	338.

STATION: SOUTH POLE			LAUNCH DATE: 18 SEP 89			508 Z	ECC SONDE: 4A4406					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	9.8	27560.	38.8	3.979	109.2	.1601	-67.9			770.6	9.2	321.
106	9.2	27924.	36.7	3.998	102.1	.1619	-65.8			791.9	9.2	321.

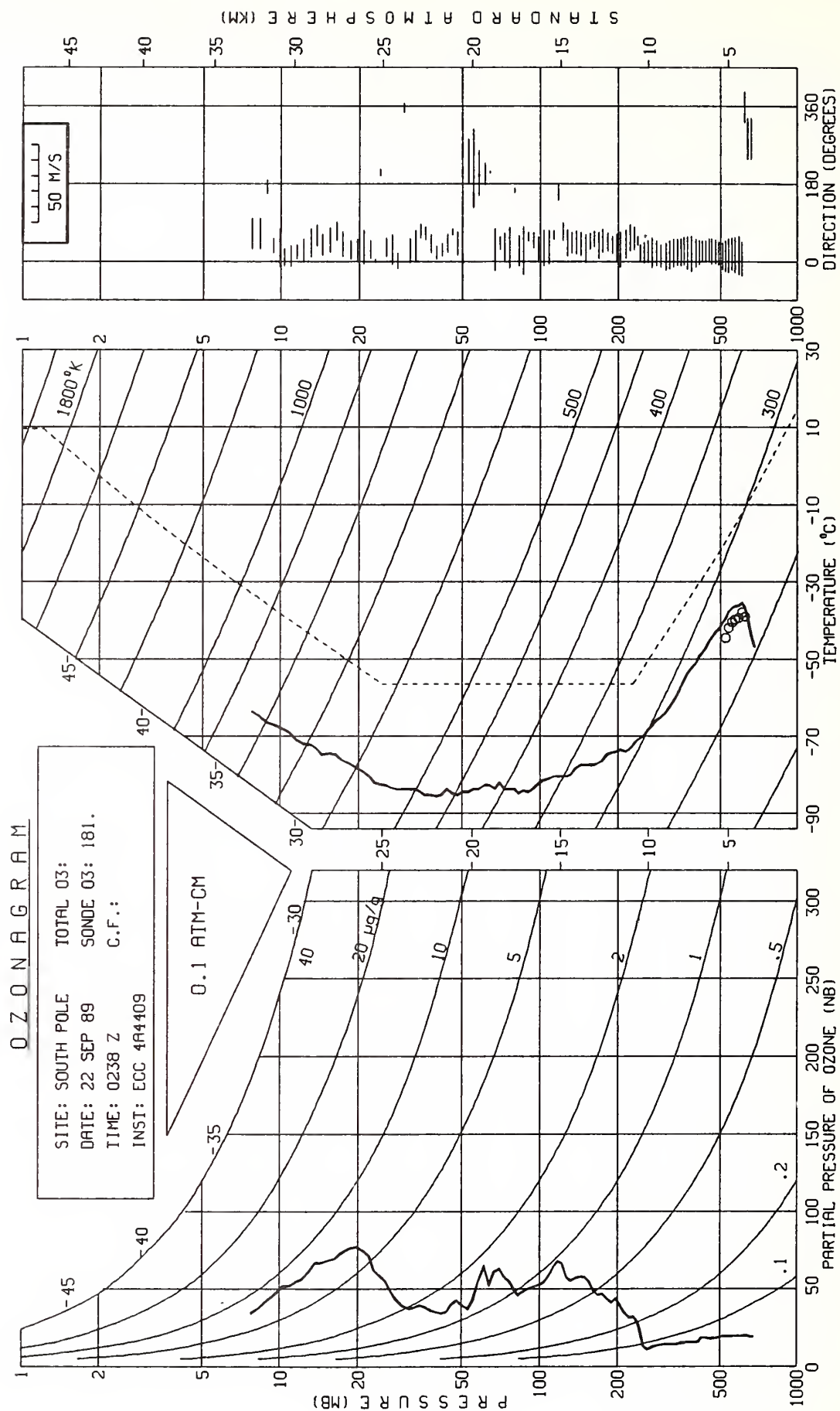
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
19.9	13.6	30.4	64.1	66.5	72.5	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS							
1110118098905		99			ECC	TOTAL O3 FROM SONDE DATA 191						
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP		
1110218098905	692	22-55		500	18-41150	5	300	12-67111	4	200	22-81287	16
1110318098905	150	45-84290	12	100	60-86314	6	70	74-88333	7	50	62-8779	3
1110418098905	30	59-87129	520.0	80-81	87	310.0	41-68328	9	673	21-35290	20	
1110518098905	658	21-34290	20	572	21-35317	11	250	16-76293	7	89	61-87315	6
1110618098905	78	77-87317	3	67	72-89331	11	59	77-85238	2	41	60-88274	4
1110718098905	37	73-86202	827.9	63-83336	824.0	77-82337	718.0	81-79304	6			
1110818098905	15.3	66-77331	613.2	58-71331	6	9.2	37-66321	9				



STATION: SOUTH POLE LAUNCH DATE: 22 SEP 89 238 Z ECC SONDE: 4A4409
 SURFACE CONDITIONS: PRESSURE 679.0 MB, TEMPERATURE -47.1 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 24.0 C AT 70.5 ORD;
 O3 ORD ZERO 34.8, BKGND 35.0, CAL 74.0; O3 BKGND 0.027 MICROAMP; FLOW RATE 26.0 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 181.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	679.0	2835.	19.3	.028	49.3	.0000	-47.1			252.5		
1	658.0	3044.	19.3	.029	48.7	.0005	-43.9			258.4	26.9	285.
2	640.0	3232.	19.8	.031	48.9	.0009	-40.2			264.7	26.9	285.
3	623.0	3417.	19.8	.032	48.3	.0013	-36.8	-39.2	79.9	270.6	20.1	358.
4	607.0	3598.	19.7	.032	47.9	.0017	-35.7	-38.2	79.0	273.9	22.2	6.
5	588.0	3819.	19.7	.034	48.0	.0022	-36.4	-39.6	73.1	275.6	24.8	14.
6	570.0	4034.	19.7	.035	48.0	.0027	-36.5	-40.0	71.3	277.9	23.1	15.
7	555.0	4219.	19.6	.035	48.0	.0031	-37.0	-40.7	70.1	279.4	20.7	17.
8	538.0	4434.	19.5	.036	47.9	.0036	-38.0	-42.1	66.6	280.7	21.9	13.
9	523.0	4628.	19.5	.037	48.2	.0040	-39.8	-44.8	59.4	280.9	19.9	12.
10	508.0	4826.	19.5	.038	48.5	.0045	-41.0			281.7	17.5	12.
11	492.0	5043.	18.7	.038	46.8	.0049	-42.5			282.5	15.2	18.
12	478.0	5238.	18.3	.038	45.9	.0054	-43.4			283.7	15.6	22.
13	462.0	5466.	18.2	.039	46.1	.0058	-44.8			284.8	16.7	23.
14	450.0	5642.	18.2	.040	46.3	.0062	-45.9			285.5	14.7	26.
15	438.0	5821.	18.6	.042	47.7	.0066	-47.5			285.6	14.0	23.
16	424.0	6035.	18.7	.044	48.0	.0071	-48.7			286.8	13.7	23.
17	413.0	6208.	16.1	.039	41.6	.0074	-49.6			287.8	15.6	21.
18	400.0	6416.	15.7	.039	40.9	.0078	-51.5			288.1	18.0	19.
19	386.0	6647.	15.7	.041	41.2	.0083	-52.5			289.6	22.5	17.
20	371.0	6902.	15.7	.042	41.5	.0088	-54.1			290.8	20.9	19.
21	360.0	7094.	15.3	.043	40.7	.0091	-55.9			290.9	18.1	24.
22	350.0	7273.	15.2	.043	40.7	.0095	-57.5			291.2	17.7	21.
23	340.0	7455.	14.4	.042	38.8	.0098	-59.4			291.0	16.9	21.
24	328.0	7679.	14.4	.044	39.2	.0102	-61.2			291.5	18.1	19.
25	317.0	7891.	14.4	.045	39.5	.0106	-62.7			292.3	17.9	15.
26	306.0	8107.	14.4	.047	39.8	.0110	-64.2			293.1	17.2	11.
27	293.0	8372.	13.9	.047	38.7	.0115	-65.4			295.1	14.4	13.
28	282.0	8605.	13.5	.048	37.7	.0119	-66.0			297.4	16.2	18.
29	271.0	8845.	12.3	.045	34.5	.0123	-67.7			298.4	19.0	20.
30	261.0	9071.	11.0	.042	31.1	.0126	-68.7			300.0	14.4	23.
31	252.0	9281.	12.9	.051	36.8	.0130	-70.1			301.1	13.9	20.
32	243.0	9496.	24.8	.102	70.8	.0134	-70.8			303.2	10.3	20.
33	238.0	9620.	29.0	.122	82.9	.0138	-71.2			304.3	5.9	48.
34	231.0	9796.	32.0	.139	91.9	.0145	-72.2			305.5	14.1	53.
35	223.0	10003.	31.6	.142	91.2	.0154	-73.4			306.7	16.9	54.
36	214.0	10243.	34.1	.159	98.9	.0164	-74.2			309.1	18.0	40.
37	204.0	10522.	40.1	.197	116.0	.0178	-73.7			314.2	22.8	28.
38	197.0	10726.	43.8	.222	127.0	.0189	-74.2			316.5	17.1	32.
39	189.6	10949.	41.2	.217	119.6	.0202	-74.4			319.6	11.1	38.
40	182.0	11187.	43.8	.241	127.5	.0215	-74.9			322.5	12.2	45.
41	174.5	11430.	47.3	.271	138.8	.0230	-76.5			323.8	15.1	47.
42	168.3	11638.	46.4	.276	136.6	.0243	-77.1			326.2	16.9	37.
43	162.1	11854.	48.8	.301	144.1	.0257	-77.6			328.8	10.2	52.
44	156.0	12073.	54.5	.349	161.0	.0271	-77.6			332.4	10.3	47.
45	149.8	12306.	58.0	.387	171.3	.0289	-77.6			336.3	18.1	29.
46	143.6	12548.	57.8	.403	170.6	.0308	-77.6			340.4	15.2	40.
47	137.5	12796.	57.2	.416	169.7	.0328	-78.5			343.1	15.0	44.
48	132.0	13027.	55.4	.420	165.5	.0346	-80.0			344.5	13.4	43.
49	127.1	13241.	57.4	.452	172.1	.0362	-80.6			347.1	17.2	43.

STATION: SOUTH POLE			LAUNCH DATE: 22 SEP 89				238 Z	ECC SONDE: 4A4409				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	122.2	13463.	66.6	.545	199.6	.0381	-80.6			351.0	11.5	69.
51	117.4	13689.	67.8	.578	203.3	.0402	-80.6			355.1	11.2	161.
52	112.7	13919.	63.7	.565	191.1	.0423	-80.6			359.3	6.0	62.
53	108.0	14159.	58.2	.539	175.0	.0444	-81.2			362.5	21.9	33.
54	103.3	14409.	53.9	.522	162.4	.0464	-81.6			366.5	23.3	31.
55	98.3	14687.	52.5	.534	159.1	.0485	-82.6			369.8	14.8	30.
56	94.0	14935.	51.2	.545	156.3	.0503	-83.9			371.9	9.8	49.
57	90.0	15176.	50.1	.557	153.3	.0520	-84.6			375.1	5.7	57.
58	85.9	15434.	48.3	.562	147.7	.0538	-84.3			380.9	30.7	25.
59	82.5	15657.	46.2	.560	141.7	.0553	-85.0			383.8	19.7	24.
60	79.4	15868.	49.8	.627	152.0	.0568	-83.9			390.3	2.9	164.
61	76.1	16104.	55.5	.729	169.4	.0585	-83.9			395.0	26.0	31.
62	72.9	16342.	57.9	.794	176.6	.0603	-83.9			399.9	17.1	34.
63	69.8	16584.	63.1	.904	190.9	.0624	-82.2			408.5	8.2	42.
64	66.8	16828.	61.2	.916	186.8	.0645	-83.9			410.0	27.0	27.
65	63.9	17075.	52.9	.828	160.5	.0665	-82.9			417.5	.9	207.
66	61.0	17334.	64.6	1.059	196.0	.0686	-82.9			423.1	14.2	203.
67	58.0	17614.	55.3	.953	168.8	.0710	-83.9			426.9	29.2	205.
68	55.3	17878.	43.0	.778	131.1	.0730	-83.9			432.7	50.6	216.
69	52.9	18124.	37.1	.701	113.5	.0744	-84.6			436.6	28.8	233.
70	50.3	18402.	39.8	.791	121.9	.0759	-84.6			443.0	5.5	6.
71	47.9	18672.	42.6	.889	130.8	.0775	-85.4			447.5	15.6	41.
72	45.8	18918.	40.2	.878	123.2	.0789	-85.0			454.1	4.4	68.
73	43.8	19165.	35.3	.806	107.7	.0803	-83.9			462.6	11.8	41.
74	41.7	19437.	34.3	.823	105.4	.0817	-85.4			465.5	8.2	27.
75	39.7	19707.	35.1	.884	108.2	.0830	-85.7			471.2	8.5	20.
76	37.7	19991.	36.5	.968	112.1	.0844	-85.4			479.1	12.0	41.
77	36.0	20244.	38.5	1.069	118.3	.0858	-85.4			485.5	8.1	65.
78	34.5	20479.	39.5	1.145	121.0	.0871	-84.6			493.3	8.9	70.
79	32.9	20742.	37.9	1.152	115.5	.0885	-83.9			502.0	19.4	37.
80	31.3	21018.	37.5	1.198	114.4	.0900	-83.9			509.2	16.0	24.
81	29.7	21309.	39.2	1.320	119.6	.0916	-83.9			516.9	6.1	356.
82	28.1	21616.	43.1	1.534	131.6	.0933	-83.9			525.1	9.7	1.
83	26.7	21899.	48.7	1.824	148.4	.0951	-83.6			533.8	19.7	27.
84	25.4	22177.	55.7	2.193	168.9	.0970	-82.9			543.4	11.9	32.
85	24.1	22470.	58.8	2.440	178.2	.0994	-82.6			552.6	4.5	207.
86	23.0	22731.	62.1	2.700	187.8	.1015	-82.2			561.0	2.4	1.
87	22.0	22981.	71.5	3.250	214.4	.1038	-80.6			573.0	11.5	27.
88	20.8	23298.	74.9	3.601	223.1	.1070	-79.4			585.9	21.9	33.
89	19.6	23636.	77.1	3.934	228.8	.1105	-78.5			598.7	14.0	27.
90	18.5	23966.	76.3	4.124	225.1	.1140	-77.4			612.2	12.1	27.
91	17.2	24385.	73.1	4.250	214.4	.1183	-76.3			628.6	15.9	40.
92	16.3	24696.	69.6	4.270	202.6	.1214	-74.9			642.6	12.1	70.
93	15.4	25026.	68.7	4.461	199.8	.1245	-74.7			654.0	16.1	49.
94	14.4	25416.	66.9	4.646	194.8	.1281	-74.9			665.8	14.1	38.
95	13.7	25707.	66.9	4.883	193.1	.1307	-73.2			681.4	13.7	60.
96	13.0	26015.	61.6	4.738	177.0	.1334	-72.4			694.2	18.6	43.
97	12.2	26388.	56.5	4.631	162.2	.1364	-72.2			707.8	14.8	24.
98	11.5	26737.	54.6	4.748	156.1	.1390	-71.2			723.2	9.0	21.
99	10.9	27055.	52.1	4.780	147.6	.1413	-69.4			741.0	13.4	12.
100	10.3	27394.	51.9	5.039	146.3	.1436	-68.5			756.4	11.3	9.
101	9.9	27632.	48.9	4.939	137.7	.1452	-67.9			767.4	24.1	31.
102	9.4	27976.	45.4	4.856	127.4	.1473	-67.2			782.5	9.7	36.
103	8.8	28342.	41.9	4.761	117.0	.1494	-66.6			798.6	8.9	173.
104	8.3	28727.	37.9	4.588	105.0	.1515	-65.0			819.5	19.9	64.

STATION: SOUTH POLE LAUNCH DATE: 22 SEP 89 238 Z ECC SONDE: 4A4409
 TIME PRESS ALT OZONE OZONE OZDEN TOTOZ TEMP DEWPT HUM POT T WIND WIND
 MIN MB GPM NB PPMV GAMMA ATMCM C C % K M/S DEG
 105 7.7 29148. 34.5 4.475 95.1 .1535 -63.8 840.6 19.9 64.

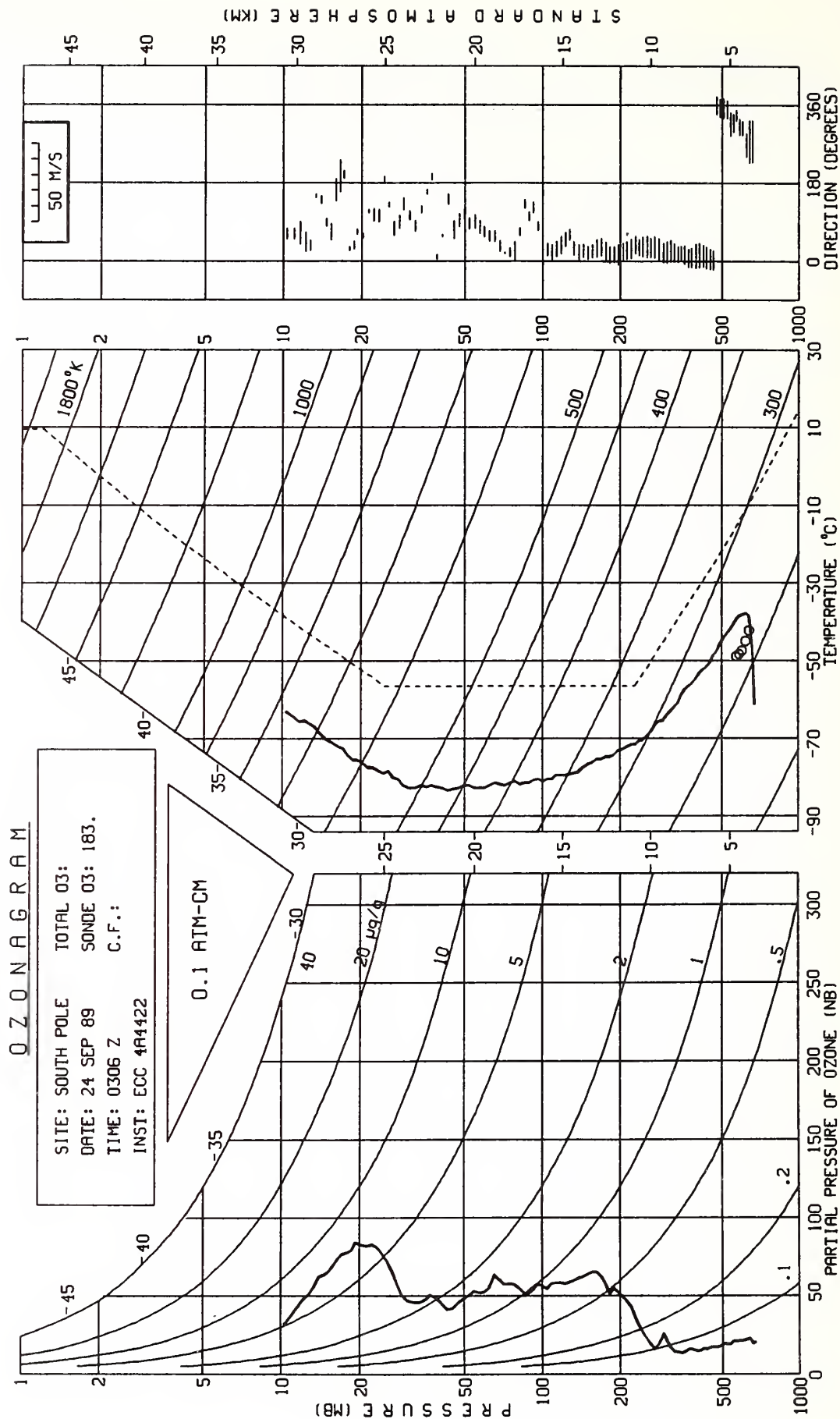
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
19.4	15.3	43.8	55.8	41.2	61.6	53.7	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110122098903			99		ECC TOTAL O3 FROM SONDE DATA 181
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110222098903	679	19-47		500	19-42 15 16 300 14-65 12 16 200 42-74 30 20
1110322098903	150	58-78	30 18	100	53-82 30 18 70 63-82 41 9 50 40-85 10 7
1110422098903	30	39-84	292 820.0	76-79	29 1710.0 50-68 25 21 623 20-37358 20
1110522098903	607	20-36	6 22 252	13-70	20 14 238 29-71 48 6 223 32-73 54 17
1110622098903	132	55-80	43 13 117	68-81	161 11 83 46-85 24 20 64 53-83207 1
1110722098903	61	65-83	203 14 53	37-85	233 2923.0 62-82 1 2 7.7 35-64 64 20



STATION: SOUTH POLE LAUNCH DATE: 24 SEP 89 306 Z ECC SONDE: 4A4422
 SURFACE CONDITIONS: PRESSURE 671.1 MB, TEMPERATURE -61.5 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 23.0 C AT 70.2 ORD;
 O3 ORD ZERO 35.5, BKGND 35.8, CAL 72.0; O3 BKGND 0.043 MICROAMP; FLOW RATE 27.3 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 183.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	671.1	2835.	20.5	.031	56.0	.0000	-61.5			237.2		
1	657.0	2971.	19.7	.030	50.2	.0003	-46.9			255.1	27.1	276.
2	639.0	3159.	23.1	.036	56.9	.0008	-38.8	-42.5	68.9	266.4	27.1	276.
3	620.0	3366.	22.2	.036	54.6	.0013	-38.1	-45.2	48.2	269.4	14.8	268.
4	601.0	3580.	21.6	.036	53.2	.0019	-38.5	-47.7	37.9	271.4	9.8	307.
5	584.0	3777.	21.6	.037	53.3	.0023	-38.8	-48.6	35.4	273.3	10.2	310.
6	569.0	3956.	21.2	.037	52.4	.0028	-39.6	-49.2	35.8	274.4	7.0	336.
7	554.0	4138.	21.2	.038	52.8	.0032	-41.0			274.8	11.7	319.
8	539.0	4324.	19.3	.036	48.3	.0037	-42.2			275.5	14.9	316.
9	523.0	4527.	19.3	.037	48.4	.0041	-43.2			276.7	11.6	350.
10	507.0	4736.	19.7	.039	49.7	.0046	-44.5			277.6	12.4	353.
11	491.0	4950.	17.9	.036	45.4	.0051	-46.1			278.3	11.8	354.
12	477.0	5142.	17.4	.036	44.6	.0055	-47.7			278.6	11.5	359.
13	462.0	5352.	17.4	.038	44.9	.0059	-49.0			279.5	12.2	2.
14	449.0	5539.	17.5	.039	45.3	.0063	-50.7			279.7	13.2	4.
15	435.0	5745.	16.0	.037	41.8	.0067	-51.8			280.8	14.0	7.
16	421.0	5956.	16.5	.039	43.2	.0071	-52.5			282.5	14.1	11.
17	408.0	6159.	15.1	.037	39.8	.0075	-53.5			283.8	15.9	13.
18	394.0	6383.	15.1	.038	40.0	.0079	-54.9			284.7	15.6	11.
19	380.0	6613.	15.9	.042	42.3	.0084	-56.1			286.2	12.2	7.
20	369.0	6800.	15.9	.043	42.4	.0087	-56.8			287.7	11.6	7.
21	357.0	7009.	14.5	.041	38.9	.0091	-57.8			289.1	11.9	14.
22	346.0	7205.	13.5	.039	36.5	.0095	-59.2			289.8	9.8	17.
23	336.0	7388.	14.0	.042	38.0	.0098	-61.2			289.5	10.0	15.
24	325.0	7595.	14.4	.044	39.4	.0102	-62.1			291.0	11.7	19.
25	315.0	7787.	16.5	.052	45.4	.0105	-63.2			292.0	13.8	23.
26	304.0	8005.	20.9	.069	57.9	.0110	-64.2			293.6	14.0	20.
27	294.0	8209.	25.7	.087	71.6	.0116	-65.6			294.5	12.8	18.
28	283.0	8441.	19.5	.069	54.3	.0123	-65.8			297.4	14.3	26.
29	272.0	8681.	16.4	.060	45.9	.0129	-66.8			299.3	13.8	31.
30	263.0	8884.	19.0	.072	53.5	.0133	-68.5			299.7	12.7	30.
31	254.0	9092.	22.5	.089	63.8	.0139	-69.6			301.1	13.8	32.
32	244.0	9331.	26.8	.110	76.5	.0146	-70.8			302.8	12.7	32.
33	237.0	9503.	31.0	.131	88.4	.0152	-70.8			305.4	10.8	31.
34	230.0	9681.	35.6	.155	102.1	.0160	-71.7			306.6	11.1	37.
35	221.0	9916.	42.9	.194	123.0	.0171	-71.7			310.1	12.4	27.
36	212.0	10161.	46.9	.221	134.9	.0186	-72.4			312.7	11.0	24.
37	205.0	10358.	49.1	.240	141.4	.0198	-72.9			314.9	10.7	22.
38	196.8	10597.	52.6	.267	151.9	.0214	-73.2			318.2	13.0	14.
39	189.8	10809.	54.7	.288	159.0	.0229	-74.4			319.5	10.2	14.
40	182.9	11024.	51.1	.279	148.9	.0245	-74.9			322.1	10.6	14.
41	175.9	11251.	57.8	.329	168.4	.0261	-74.9			325.7	11.0	23.
42	169.1	11479.	62.8	.371	183.5	.0279	-75.5			328.5	11.4	32.
43	162.6	11706.	65.1	.400	190.3	.0298	-75.5			332.2	11.3	29.
44	156.1	11942.	65.3	.418	191.5	.0319	-76.3			334.7	8.9	22.
45	150.0	12172.	63.9	.426	187.8	.0340	-76.8			337.6	8.5	19.
46	144.1	12402.	62.3	.432	184.1	.0360	-77.6			340.1	8.6	23.
47	138.3	12637.	61.3	.443	182.0	.0380	-78.8			342.0	11.1	18.
48	132.5	12880.	59.9	.452	178.4	.0400	-79.1			345.7	8.2	28.
49	127.7	13090.	58.8	.460	175.2	.0418	-79.4			348.9	7.0	61.

STATION: SOUTH POLE			LAUNCH DATE: 24 SEP 89 306 Z					ECC SONDE: 4A4422				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	122.9	13307.	58.0	.472	173.0	.0435	-79.7			352.1	9.2	49.
51	118.0	13538.	58.4	.495	174.2	.0454	-79.7			356.3	10.9	37.
52	113.3	13768.	58.3	.515	174.1	.0472	-79.7			360.4	10.0	27.
53	109.0	13987.	58.1	.533	174.2	.0490	-80.6			362.7	9.8	20.
54	104.6	14219.	54.5	.521	163.4	.0508	-80.6			367.0	8.1	26.
55	100.2	14461.	56.4	.563	169.8	.0527	-81.2			370.3	8.3	36.
56	96.2	14690.	57.5	.598	172.5	.0545	-80.6			375.9	6.0	81.
57	92.4	14917.	53.8	.582	161.5	.0562	-80.9			379.6	7.0	123.
58	88.5	15160.	51.9	.586	156.5	.0580	-81.6			383.0	5.4	103.
59	85.0	15386.	51.7	.608	155.8	.0597	-81.6			387.5	5.1	131.
60	81.5	15622.	54.9	.674	165.7	.0614	-81.9			391.5	4.5	67.
61	78.0	15868.	57.4	.736	172.8	.0633	-81.2			397.8	12.1	22.
62	74.7	16111.	58.0	.776	174.9	.0653	-81.6			402.1	5.5	19.
63	71.3	16372.	57.5	.806	173.9	.0674	-82.2			406.1	.8	19.
64	68.3	16613.	60.4	.884	182.3	.0694	-81.9			411.8	7.4	35.
65	65.4	16856.	63.2	.966	190.6	.0714	-81.6			417.6	6.9	57.
66	62.3	17128.	54.8	.880	165.8	.0737	-82.2			422.0	6.9	57.
67	59.6	17375.	52.3	.878	158.6	.0756	-82.9			425.9	6.8	67.
68	57.1	17614.	52.2	.914	158.3	.0774	-82.9			431.1	8.5	78.
69	54.6	17864.	53.2	.974	161.4	.0792	-82.9			436.7	8.3	91.
70	52.1	18125.	50.2	.964	151.9	.0811	-82.2			444.1	7.1	86.
71	49.7	18389.	48.3	.972	145.9	.0830	-82.2			450.2	6.5	107.
72	47.5	18642.	46.1	.971	139.8	.0847	-82.9			454.4	8.4	94.
73	45.3	18906.	41.9	.925	127.5	.0863	-83.2			459.8	11.5	72.
74	43.1	19183.	41.6	.965	126.6	.0880	-83.6			465.5	6.7	142.
75	41.0	19460.	45.3	1.105	137.3	.0896	-82.9			473.9	1.3	58.
76	39.0	19739.	48.8	1.251	147.8	.0914	-82.6			481.6	3.0	9.
77	37.2	20003.	50.6	1.360	153.0	.0932	-82.2			489.0	4.7	194.
78	35.7	20233.	47.9	1.342	145.2	.0948	-82.6			493.9	3.1	159.
79	34.0	20506.	46.0	1.353	139.1	.0966	-82.2			501.7	4.4	119.
80	32.1	20827.	46.0	1.433	139.7	.0987	-82.9			508.3	7.0	80.
81	30.5	21112.	46.8	1.534	142.0	.1006	-82.9			515.7	5.9	105.
82	29.0	21394.	50.1	1.728	151.5	.1025	-82.2			525.1	7.6	131.
83	27.8	21631.	57.1	2.054	171.3	.1042	-80.6			535.9	8.9	90.
84	26.5	21901.	65.6	2.475	196.3	.1064	-80.3			544.2	8.8	75.
85	25.4	22142.	72.2	2.843	214.2	.1087	-78.5			555.9	3.0	129.
86	24.3	22394.	77.0	3.169	229.1	.1112	-79.1			561.3	4.5	187.
87	23.2	22657.	81.2	3.500	241.0	.1140	-78.5			570.5	7.5	104.
88	22.2	22909.	82.9	3.734	244.7	.1168	-77.6			580.3	8.2	106.
89	21.2	23173.	82.1	3.873	242.5	.1198	-77.6			588.0	2.2	115.
90	20.2	23451.	82.7	4.094	242.5	.1229	-76.3			600.4	2.9	58.
91	19.2	23744.	84.1	4.380	246.0	.1262	-75.7			610.8	3.5	67.
92	18.6	23928.	79.2	4.258	231.6	.1282	-75.7			616.4	5.3	36.
93	17.9	24150.	77.9	4.352	226.5	.1306	-74.7			626.5	2.8	28.
94	17.1	24417.	76.9	4.497	221.4	.1334	-72.7			641.1	5.2	200.
95	16.5	24627.	73.6	4.461	211.6	.1355	-72.4			648.5	20.8	196.
96	15.9	24845.	69.8	4.390	200.2	.1376	-71.7			657.7	14.5	164.
97	15.2	25111.	65.7	4.322	187.8	.1401	-71.0			668.6	10.5	67.
98	14.6	25350.	63.7	4.363	181.3	.1421	-70.3			678.6	5.0	89.
99	14.0	25600.	62.5	4.464	176.7	.1442	-69.0			691.4	4.6	141.
100	13.3	25908.	55.5	4.173	155.6	.1467	-67.2			707.5	2.5	150.
101	12.7	26187.	50.5	3.976	141.0	.1486	-66.4			719.8	6.5	36.
102	12.2	26431.	48.2	3.951	134.1	.1502	-65.6			731.0	12.6	44.
103	11.6	26738.	43.2	3.724	120.4	.1520	-65.8			740.9	14.3	65.
104	11.0	27061.	38.1	3.464	105.4	.1538	-64.6			756.6	7.1	63.

STATION: SOUTH POLE LAUNCH DATE: 24 SEP 89 306 Z ECC SONDE: 4A4422
 TIME PRESS ALT OZONE OZONE OZDEN TOTOTZ TEMP DEWPT HUM POT T WIND WIND
 MIN MB GPM NB PPMV GAMMA ATMCM C C % K M/S DEG
 105 10.3 27464. 31.8 3.087 87.5 .1557 -63.2 776.0 7.1 63.

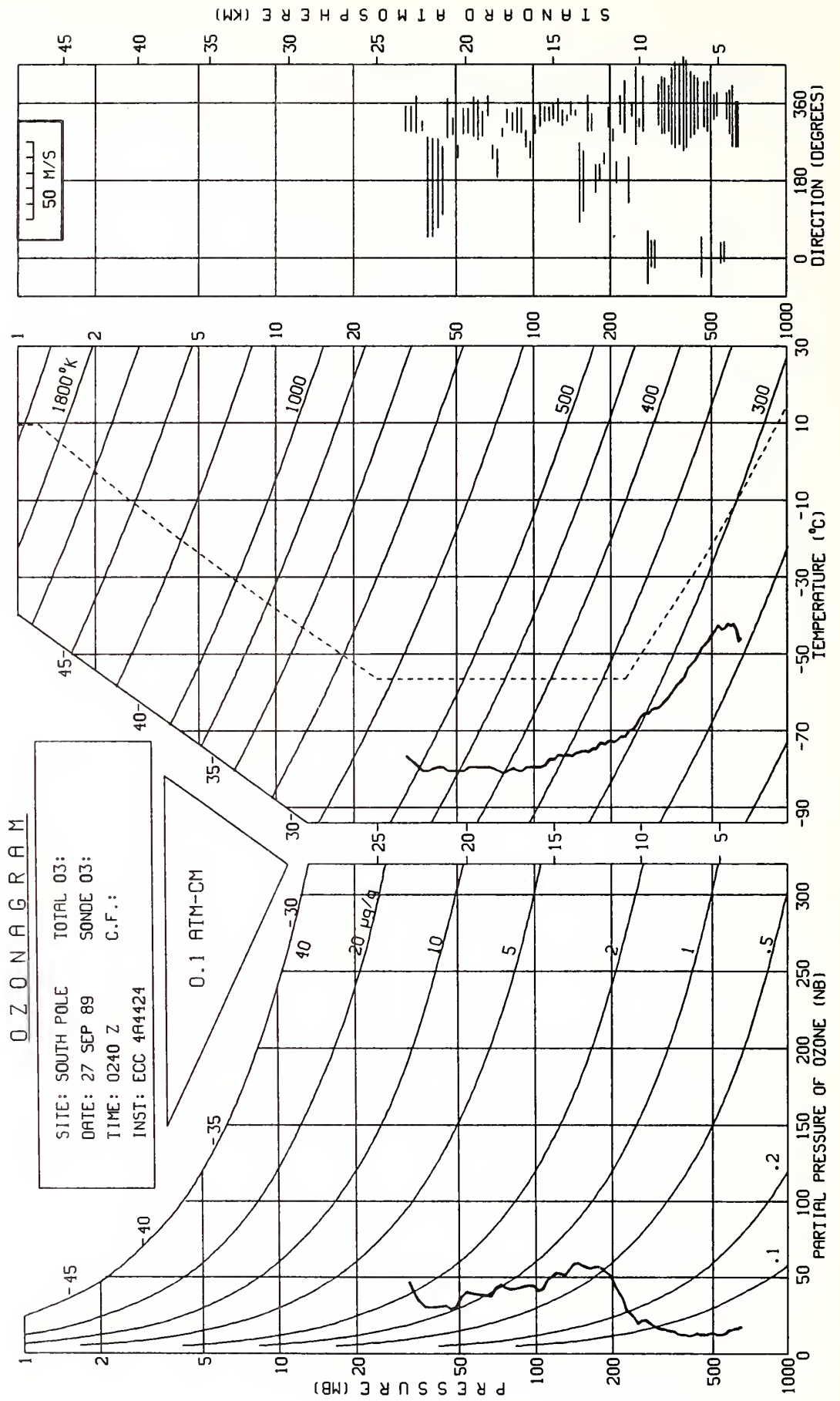
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
20.6	17.1	52.3	56.4	47.7	71.1	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110124098903		99			ECC TOTAL O3 FROM SONDE DATA 183
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110224098903	671	21-62		500	19-45353 12 300 23-65 19 14 200 51-73 17 12
1110324098903	150	64-77	19	9	100 56-81 38 8 70 59-82 26 4 50 49-82104 7
1110424098903	30	48-83	114	620.0	83-76 60 3 657 20-47276 27 639 23-39276 27
1110524098903	584	22-39	310	10	346 14-59 17 10 272 16-67 31 14 244 27-71 32 13
1110624098903	65	63-82	57	7	43 42-84142 7 37 51-82194 525.4 72-79129 3
1110724098903	14.0	63-69	141	510.3	32-63 63 7



STATION: SOUTH POLE LAUNCH DATE: 27 SEP 89 240 Z ECC SONDE: 4A4424
 SURFACE CONDITIONS: PRESSURE 655.1 MB, TEMPERATURE -46.2 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 28.0 C AT 71.3 ORD;
 O3 ORD ZERO 38.8, BKGND 40.0, CAL 76.6; O3 BKGND 0.166 MICROAMP; FLOW RATE 26.1 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 ; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	655.1	2835.	17.3	.026	44.0	.0000	-46.2			256.1		
1	641.0	2979.	17.4	.027	44.3	.0003	-46.8			257.0	29.5	312.
2	628.0	3116.	16.5	.026	41.5	.0006	-43.9			261.8	29.5	312.
3	610.0	3312.	16.4	.027	41.1	.0009	-42.4			265.8	39.3	331.
4	594.0	3491.	15.6	.026	39.2	.0013	-42.9			267.2	28.4	341.
5	579.0	3664.	15.2	.026	37.9	.0016	-42.4			269.8	17.5	355.
6	563.0	3853.	13.3	.024	33.5	.0019	-43.6			270.5	13.4	15.
7	547.0	4047.	12.5	.023	31.5	.0022	-43.9			272.4	13.5	12.
8	531.0	4247.	12.5	.024	31.4	.0025	-42.9			275.9	15.4	358.
9	517.0	4426.	12.6	.024	31.7	.0027	-44.1			276.6	16.5	352.
10	500.0	4650.	13.5	.027	34.1	.0031	-45.4			277.7	24.7	351.
11	485.0	4853.	13.1	.027	33.4	.0034	-46.8			278.3	32.4	353.
12	470.0	5060.	12.3	.026	31.5	.0037	-47.8			279.6	29.3	358.
13	457.0	5245.	12.3	.027	31.7	.0040	-48.7			280.7	26.4	2.
14	443.0	5449.	12.4	.028	32.0	.0043	-50.2			281.3	33.1	360.
15	430.0	5643.	13.2	.031	34.5	.0046	-51.8			281.8	38.1	357.
16	416.0	5857.	12.0	.029	31.4	.0049	-52.9			283.0	43.3	357.
17	401.0	6093.	11.5	.029	30.3	.0052	-54.1			284.4	56.8	359.
18	389.0	6287.	12.1	.031	32.1	.0055	-56.3			284.1	61.3	359.
19	376.0	6502.	12.1	.032	32.5	.0058	-57.5			285.3	52.3	359.
20	362.0	6741.	12.7	.035	34.2	.0062	-58.7			286.8	55.9	357.
21	351.0	6935.	14.4	.041	38.9	.0065	-59.9			287.6	49.7	354.
22	341.0	7115.	14.8	.043	40.4	.0068	-61.2			288.3	29.9	349.
23	330.0	7318.	14.9	.045	40.7	.0072	-62.3			289.5	36.1	354.
24	321.0	7488.	15.8	.049	43.4	.0075	-63.2			290.5	37.1	356.
25	310.0	7702.	16.2	.052	44.8	.0080	-64.2			292.0	26.5	357.
26	300.0	7903.	17.1	.057	47.3	.0084	-64.4			294.5	18.1	9.
27	291.0	8089.	18.3	.063	50.8	.0088	-64.6			296.8	17.4	10.
28	282.0	8280.	20.0	.071	55.8	.0093	-65.8			297.7	34.7	1.
29	271.0	8522.	22.1	.082	61.6	.0099	-65.8			301.1	35.7	358.
30	262.0	8727.	21.8	.083	60.8	.0105	-66.6			302.8	5.5	314.
31	253.0	8937.	19.8	.078	55.8	.0111	-68.5			303.0	50.8	354.
32	245.0	9129.	23.4	.096	66.6	.0116	-69.9			303.9	9.4	346.
33	237.0	9327.	26.0	.110	73.8	.0122	-70.1			306.4	29.5	181.
34	228.0	9556.	28.3	.124	81.2	.0130	-71.7			307.3	34.1	352.
35	220.0	9767.	36.0	.164	103.2	.0139	-71.7			310.5	18.7	344.
36	212.0	9985.	40.4	.191	116.3	.0149	-72.7			312.3	13.6	199.
37	205.0	10182.	44.6	.218	128.8	.0160	-73.2			314.5	7.8	286.
38	197.0	10415.	51.0	.259	147.1	.0174	-72.9			318.5	12.5	327.
39	190.0	10627.	53.3	.281	154.3	.0189	-73.7			320.6	7.6	231.
40	182.8	10853.	55.6	.304	160.6	.0205	-73.4			324.6	10.6	199.
41	175.9	11077.	57.1	.325	166.3	.0222	-74.9			325.7	17.8	185.
42	169.8	11282.	57.0	.336	166.1	.0238	-74.9			329.0	11.3	316.
43	163.6	11497.	56.0	.342	163.6	.0255	-75.7			331.2	23.5	337.
44	157.5	11717.	56.7	.360	165.6	.0271	-75.5			335.2	39.4	179.
45	152.0	11923.	58.0	.382	169.7	.0287	-75.7			338.2	51.6	175.
46	146.4	12140.	59.3	.405	173.8	.0304	-76.0			341.4	3.5	338.
47	141.0	12357.	58.8	.417	172.9	.0322	-76.8			343.6	8.8	348.
48	135.7	12577.	55.1	.406	161.9	.0339	-76.5			347.9	4.1	326.
49	130.5	12802.	51.3	.393	150.9	.0356	-76.8			351.3	10.2	326.

STATION: SOUTH POLE			LAUNCH DATE: 27 SEP 89			240 Z		ECC SONDE: 4A4424					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	125.5	13027.	52.4	.418	153.9	.0372	-76.5			355.8	15.4	343.	
51	120.2	13275.	52.8	.439	155.9	.0390	-77.6			358.1	10.0	342.	
52	115.5	13503.	50.4	.436	148.9	.0406	-77.6			362.2	9.2	335.	
53	111.0	13730.	48.5	.437	144.2	.0421	-79.1			363.7	9.7	335.	
54	106.3	13975.	42.4	.399	126.6	.0437	-79.7			367.1	15.6	334.	
55	102.0	14209.	41.2	.404	123.1	.0451	-79.7			371.4	12.3	311.	
56	97.7	14453.	44.7	.458	133.4	.0465	-79.7			376.0	10.6	251.	
57	93.9	14678.	44.7	.476	133.4	.0479	-79.7			380.3	10.8	277.	
58	90.1	14912.	44.2	.491	132.6	.0493	-80.6			383.0	15.8	320.	
59	86.5	15142.	43.4	.502	130.1	.0507	-80.6			387.5	16.1	320.	
60	82.8	15388.	42.6	.514	127.4	.0522	-80.0			393.6	11.4	317.	
61	79.1	15647.	42.3	.535	126.7	.0537	-80.6			397.5	9.0	330.	
62	76.0	15872.	43.4	.571	130.5	.0551	-81.2			400.7	5.0	292.	
63	72.7	16122.	45.2	.622	135.7	.0566	-80.6			407.2	18.2	220.	
64	69.5	16376.	43.1	.620	129.0	.0582	-80.0			413.8	8.9	246.	
65	66.7	16609.	37.6	.564	112.2	.0595	-79.7			419.3	12.9	354.	
66	63.8	16861.	38.2	.599	114.1	.0608	-79.7			424.7	16.2	312.	
67	61.2	17096.	38.6	.631	115.2	.0621	-79.7			429.8	26.0	321.	
68	58.6	17342.	38.9	.664	116.2	.0634	-79.7			435.1	25.5	328.	
69	56.0	17600.	39.6	.707	118.3	.0648	-79.7			440.8	15.8	318.	
70	53.5	17858.	40.4	.755	121.0	.0662	-80.6			444.5	16.6	318.	
71	50.9	18139.	37.0	.727	111.0	.0677	-80.6			450.9	8.2	247.	
72	48.6	18399.	30.4	.626	91.1	.0690	-80.6			456.8	10.8	306.	
73	46.4	18661.	29.3	.631	87.7	.0701	-80.6			462.9	25.8	325.	
74	44.3	18923.	31.4	.709	93.8	.0712	-79.7			471.3	44.5	180.	
75	42.5	19158.	31.0	.729	92.5	.0722	-79.7			477.0	57.6	173.	
76	40.6	19417.	30.5	.751	91.2	.0733	-80.0			482.5	63.7	164.	
77	38.8	19673.	30.4	.784	91.3	.0744	-80.6			487.2	64.5	164.	
78	37.0	19941.	30.4	.822	91.3	.0755	-80.6			493.9	6.4	307.	
79	35.1	20239.	34.1	.972	101.5	.0768	-79.1			505.3	24.2	334.	
80	33.4	20522.	39.9	1.195	118.1	.0782	-77.9			515.6	16.6	324.	
81	31.9	20786.	47.1	1.476	138.5	.0797	-76.8			525.4	16.6	324.	

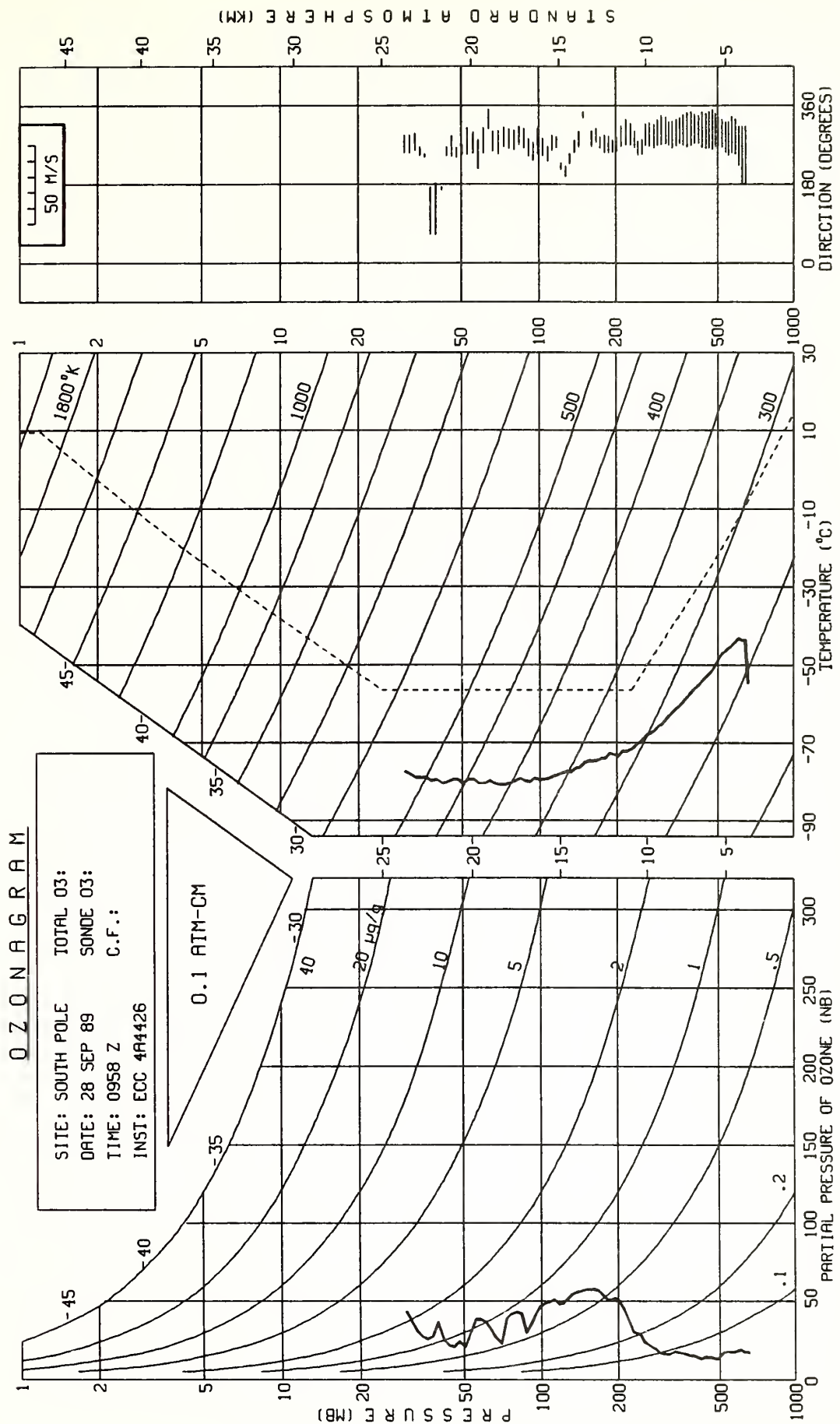
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
14.4	15.0	47.7	44.0	33.9	999.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110127098903				99	ECC TOTAL O3 FROM SONDE DATA
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP P3TTTDDDDFFFP
1110227098903	655	17-46		500	14-45351 25 300 17-64 9 18 200 49-73311 11
1110327098903	150	58-76233	35	100	43-80283 12 70 43-80242 10 50 34-81270 9
1110427098903	641	17-47312	30	610	16-42331 39 531 13-43358 15 341 15-61349 30
1110527098903	253	20-69354	51	37	30-81307 6 32 47-77324 17



STATION: SOUTH POLE LAUNCH DATE: 28 SEP 89 958 Z ECC SONDE: 4A4426
 SURFACE CONDITIONS: PRESSURE 659.4 MB, TEMPERATURE -54.9 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 29.0 C AT 72.3 ORD;
 O3 ORD ZERO 36.0, BKGND 36.9, CAL 72.9; O3 BKGND 0.128 MICROAMP; FLOW RATE 26.4 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 ; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	659.4	2835.	17.1	.026	45.3	.0000	-54.9			245.8		
1	643.0	3000.	17.6	.027	44.4	.0003	-43.8			260.2	37.4	246.
2	625.0	3191.	17.7	.028	44.5	.0007	-43.9			262.2	37.4	246.
3	606.0	3398.	19.1	.032	47.9	.0012	-43.5			265.0	25.2	268.
4	586.0	3624.	18.1	.031	45.6	.0017	-44.4			266.6	22.1	290.
5	570.0	3809.	17.6	.031	44.7	.0021	-45.2			267.7	23.2	293.
6	553.0	4011.	17.7	.032	45.0	.0025	-45.8			269.3	21.6	285.
7	536.0	4218.	17.8	.033	45.3	.0029	-46.7			270.7	19.3	288.
8	520.0	4419.	17.4	.033	44.4	.0033	-47.2			272.3	18.2	297.
9	503.0	4638.	15.1	.030	38.9	.0038	-48.7			273.1	18.2	302.
10	490.0	4810.	13.3	.027	34.5	.0041	-49.9			273.7	21.0	305.
11	477.0	4985.	13.4	.028	34.8	.0043	-51.3			274.1	25.2	306.
12	461.0	5206.	14.3	.031	37.4	.0047	-52.5			275.2	23.0	305.
13	449.0	5376.	14.3	.032	37.6	.0050	-53.3			276.3	22.8	303.
14	433.0	5609.	14.3	.033	37.8	.0054	-54.3			278.0	22.4	305.
15	420.0	5804.	13.4	.032	35.6	.0058	-55.3			279.2	17.5	306.
16	407.0	6005.	14.4	.035	38.2	.0061	-56.1			280.6	18.7	307.
17	393.0	6227.	15.3	.039	40.9	.0065	-57.1			282.1	21.5	308.
18	380.0	6439.	15.4	.041	41.4	.0069	-58.3			283.3	21.9	305.
19	367.0	6657.	16.3	.044	44.1	.0073	-59.4			284.7	19.6	305.
20	355.0	6865.	16.8	.047	45.7	.0077	-60.6			285.7	16.4	304.
21	344.0	7061.	17.3	.050	47.2	.0082	-61.3			287.3	17.1	299.
22	332.0	7280.	17.8	.054	48.6	.0086	-62.3			289.0	17.2	294.
23	322.0	7469.	16.8	.052	46.2	.0090	-63.2			290.2	15.0	297.
24	313.0	7643.	15.9	.051	43.9	.0094	-64.0			291.5	16.7	304.
25	301.0	7882.	16.7	.055	46.5	.0099	-65.4			292.8	18.0	304.
26	291.0	8087.	16.8	.058	46.8	.0103	-65.8			295.1	16.2	298.
27	282.0	8277.	19.3	.068	54.2	.0108	-67.0			295.9	15.2	290.
28	271.0	8517.	20.7	.076	58.1	.0114	-67.7			298.4	15.3	294.
29	262.0	8720.	22.4	.085	63.2	.0119	-68.1			300.7	13.8	294.
30	253.0	8929.	24.0	.095	67.9	.0126	-69.4			301.7	9.1	266.
31	245.0	9121.	28.5	.116	81.0	.0132	-70.1			303.5	8.6	263.
32	237.0	9318.	29.4	.124	83.9	.0139	-71.0			305.0	10.3	283.
33	229.0	9521.	30.4	.133	87.1	.0147	-71.7			307.0	14.1	295.
34	220.0	9757.	38.2	.174	109.8	.0157	-72.4			309.4	16.4	299.
35	210.0	10031.	45.5	.217	130.8	.0172	-72.4			313.5	13.2	290.
36	202.0	10258.	50.4	.250	145.8	.0186	-73.7			315.1	8.2	272.
37	195.0	10465.	51.8	.266	149.6	.0200	-73.2			319.1	7.6	268.
38	188.1	10676.	51.2	.272	147.7	.0215	-72.9			322.8	10.9	272.
39	181.5	10885.	51.2	.282	148.7	.0229	-74.2			324.0	11.4	273.
40	174.5	11114.	54.1	.310	157.0	.0245	-74.2			327.7	7.1	276.
41	168.4	11321.	56.9	.338	165.6	.0260	-74.7			330.2	9.0	282.
42	162.2	11539.	57.7	.356	168.2	.0276	-74.9			333.3	9.9	284.
43	156.0	11765.	57.4	.368	167.3	.0294	-74.9			337.1	1.4	36.
44	150.0	11993.	57.4	.383	167.3	.0312	-75.2			340.4	3.8	339.
45	144.1	12225.	56.5	.392	165.9	.0330	-76.5			342.0	10.1	284.
46	138.4	12457.	55.9	.404	164.3	.0347	-76.8			345.5	8.3	267.
47	132.7	12698.	54.6	.411	161.3	.0366	-77.6			348.2	6.4	239.
48	127.8	12914.	51.7	.405	152.5	.0382	-77.6			351.9	6.6	210.
49	122.5	13156.	49.0	.400	144.9	.0398	-77.9			355.7	4.4	221.

STATION: SOUTH POLE			LAUNCH DATE: 28 SEP 89 958 Z					ECC SONDE: 4A4426				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	117.3	13404.	48.3	.412	143.1	.0415	-78.5			359.1	6.7	277.
51	112.7	13632.	51.3	.455	152.5	.0430	-78.8			362.6	9.6	275.
52	108.1	13868.	49.7	.460	148.2	.0447	-79.4			365.9	9.4	250.
53	103.7	14104.	48.8	.471	145.7	.0463	-79.7			369.7	11.4	265.
54	99.1	14361.	47.0	.474	140.4	.0480	-79.7			374.5	16.2	279.
55	95.1	14595.	42.2	.444	125.8	.0495	-79.4			379.5	11.8	255.
56	91.2	14832.	35.6	.390	106.6	.0508	-80.3			382.3	10.6	264.
57	87.3	15079.	29.9	.342	89.4	.0520	-80.0			387.7	12.1	285.
58	83.6	15324.	42.0	.502	125.2	.0531	-79.4			393.7	11.6	292.
59	80.1	15567.	42.9	.536	128.2	.0545	-80.0			397.3	12.1	281.
60	76.7	15812.	42.0	.548	125.8	.0560	-80.6			401.0	12.2	284.
61	73.3	16067.	39.0	.532	117.2	.0575	-80.9			405.6	12.5	288.
62	69.9	16335.	23.2	.332	69.8	.0588	-80.9			411.1	14.3	275.
63	66.5	16616.	26.9	.405	80.6	.0597	-80.6			417.7	12.4	279.
64	63.9	16841.	31.6	.495	94.3	.0606	-80.0			423.8	12.3	329.
65	61.1	17094.	36.5	.597	109.5	.0617	-80.6			427.9	16.3	280.
66	58.2	17368.	38.5	.662	115.5	.0631	-80.6			433.9	18.5	249.
67	55.7	17616.	38.4	.689	114.7	.0644	-79.7			441.5	13.5	275.
68	52.9	17909.	29.1	.550	86.9	.0659	-79.7			448.1	17.0	279.
69	50.5	18171.	21.1	.418	63.4	.0669	-80.6			451.9	6.0	260.
70	48.2	18435.	24.2	.502	72.1	.0677	-79.7			460.1	6.6	253.
71	46.0	18699.	21.0	.457	62.6	.0685	-79.7			466.3	13.0	267.
72	44.0	18951.	21.6	.491	64.7	.0693	-80.3			470.8	5.6	255.
73	42.0	19213.	25.6	.610	76.7	.0701	-80.6			476.3	2.3	170.
74	39.8	19517.	36.3	.912	108.3	.0713	-79.7			486.0	33.5	124.
75	38.0	19780.	27.4	.721	82.0	.0725	-80.0			491.7	30.4	120.
76	36.2	20055.	25.9	.715	77.1	.0735	-79.1			500.9	2.3	246.
77	34.6	20312.	27.4	.792	81.5	.0745	-79.1			507.4	5.5	256.
78	33.0	20581.	31.2	.945	92.8	.0755	-79.1			514.3	10.9	277.
79	31.5	20846.	37.0	1.175	109.6	.0767	-78.2			523.5	11.4	272.
80	30.0	21125.	43.5	1.450	128.3	.0782	-77.6			532.5	11.4	272.

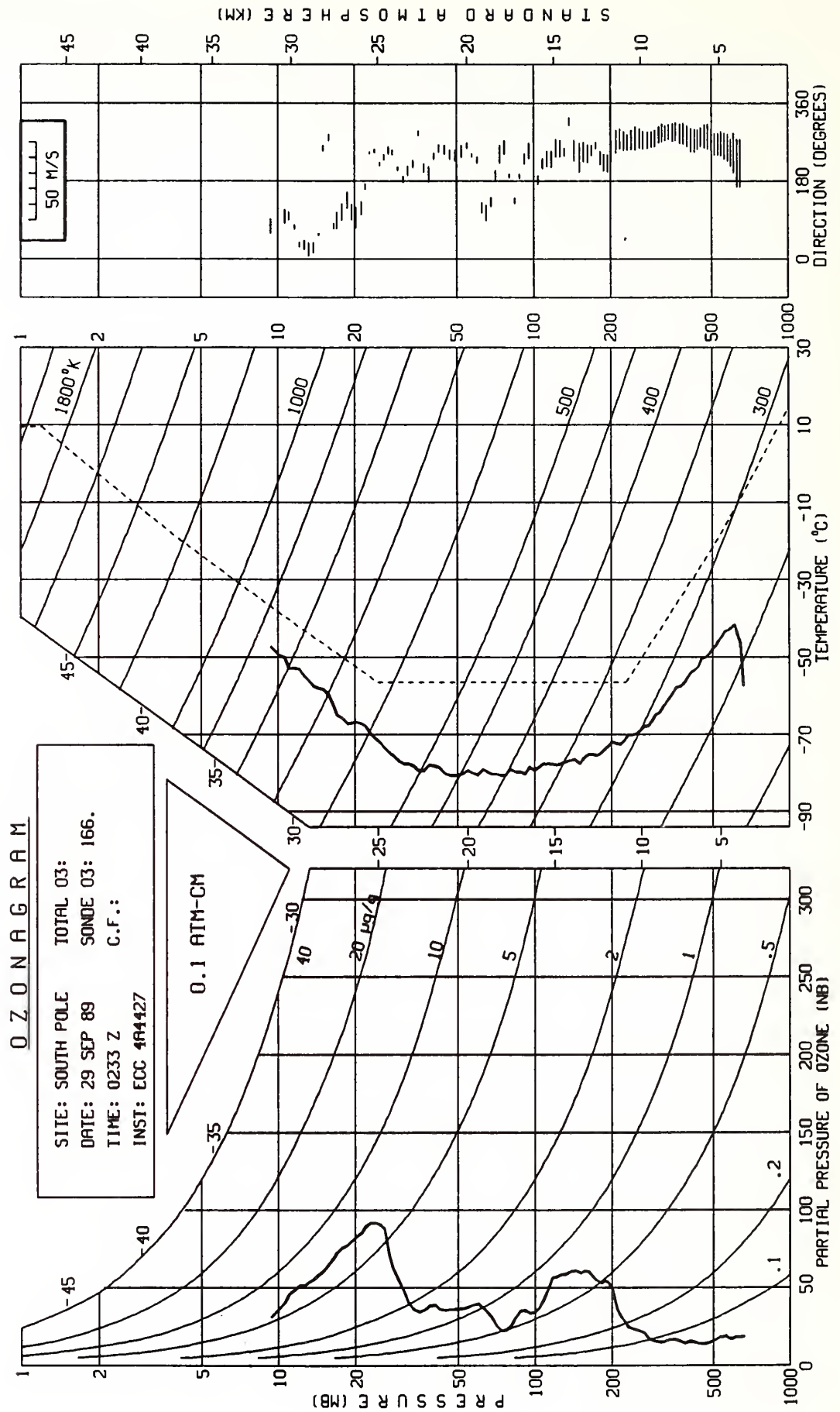
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
17.6	16.4	48.0	40.4	28.9	999.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110128098910			99		ECC TOTAL O3 FROM SONDE DATA
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	P3TTTDDDDFFFP
1110228098910	659	17-55		500	15-49303 19 300 17-65303 18 200 51-74271 8
1110328098910	150	57-75339	4	100	47-80276 15 70 24-81275 14 50 22-80259 6
1110428098910	643	18-44246	37	606	19-44268 25 229 30-72295 14 87 30-80285 12
1110528098910	84	42-79292	12	73	39-81288 13 56 38-80275 14 44 22-80255 6
1110628098910	40	36-80124	34	35	27-79256 6 30 44-78272 11



STATION: SOUTH POLE LAUNCH DATE: 29 SEP 89 233 Z ECC SONDE: 4A4427
 SURFACE CONDITIONS: PRESSURE 662.0 MB, TEMPERATURE -57.7 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.2 ORD; HUM 33.0 % AT 77.0 ORD; TBOX 26.5 C AT 71.5 ORD;
 O3 ORD ZERO 34.8, BKGND 35.0, CAL 71.0; O3 BKGND 0.029 MICROAMP; FLOW RATE 29.4 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 166.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	662.0	2835.	18.9	.029	50.7	.0000	-57.7			242.5		
1	645.0	3003.	18.4	.029	46.9	.0004	-46.7			256.7	30.9	222.
2	628.0	3181.	18.4	.029	46.4	.0008	-44.3			261.4	30.9	222.
3	611.0	3366.	18.4	.030	45.9	.0012	-41.9			266.2	25.6	245.
4	595.0	3546.	17.3	.029	43.4	.0015	-42.6			267.4	17.8	246.
5	578.0	3741.	17.4	.030	43.6	.0019	-43.2			269.0	17.5	256.
6	561.0	3942.	19.0	.034	47.7	.0024	-43.6			270.8	16.9	261.
7	543.0	4161.	18.4	.034	46.7	.0028	-45.0			271.6	15.5	267.
8	529.0	4335.	18.4	.035	46.9	.0032	-46.0			272.5	13.9	265.
9	514.0	4526.	16.8	.033	43.1	.0036	-47.5			273.0	13.6	265.
10	499.0	4721.	15.8	.032	40.5	.0040	-48.3			274.2	13.6	276.
11	484.0	4922.	14.7	.030	38.0	.0044	-49.5			275.1	15.8	283.
12	469.0	5127.	14.1	.030	36.7	.0047	-50.4			276.5	15.2	283.
13	453.0	5354.	13.9	.031	36.2	.0051	-50.6			279.1	12.6	281.
14	440.0	5543.	13.9	.032	36.4	.0054	-52.6			278.9	13.1	276.
15	427.0	5736.	14.8	.035	39.0	.0058	-53.5			280.1	14.6	274.
16	414.0	5935.	15.3	.037	40.4	.0061	-54.0			281.9	14.8	275.
17	400.0	6155.	15.3	.038	40.5	.0065	-55.5			282.8	13.3	284.
18	387.0	6365.	14.2	.037	38.0	.0069	-57.0			283.5	13.4	290.
19	374.0	6581.	15.3	.041	40.9	.0073	-57.7			285.4	12.9	290.
20	361.0	6804.	16.2	.045	43.5	.0077	-58.0			287.9	11.6	295.
21	350.0	6998.	16.7	.048	45.0	.0081	-59.4			288.5	11.5	293.
22	338.0	7216.	16.6	.049	45.3	.0086	-60.8			289.5	9.6	293.
23	327.0	7421.	16.1	.049	44.1	.0090	-62.1			290.5	9.5	291.
24	318.0	7593.	15.1	.047	41.5	.0093	-63.2			291.2	11.1	291.
25	309.0	7769.	15.1	.049	41.8	.0097	-64.6			291.7	10.7	287.
26	299.0	7970.	15.5	.052	43.0	.0101	-65.0			293.9	10.5	279.
27	289.0	8177.	16.0	.055	44.6	.0105	-66.6			294.5	10.3	277.
28	280.0	8367.	17.0	.061	47.7	.0109	-67.9			295.4	11.3	275.
29	269.0	8608.	20.8	.077	58.6	.0115	-68.1			298.5	11.6	275.
30	260.0	8812.	21.8	.084	61.7	.0120	-69.2			299.8	12.7	279.
31	250.0	9046.	22.7	.091	64.6	.0127	-70.0			301.8	14.5	278.
32	241.0	9264.	23.6	.098	67.2	.0133	-70.3			304.7	12.4	276.
33	233.0	9465.	24.6	.106	69.9	.0140	-70.3			307.6	10.2	270.
34	226.0	9645.	27.8	.123	79.6	.0146	-71.7			308.2	12.0	272.
35	218.0	9857.	31.4	.144	90.6	.0154	-72.8			309.5	12.8	278.
36	210.0	10077.	35.9	.171	103.5	.0163	-72.6			313.2	14.4	271.
37	201.0	10334.	48.7	.242	139.8	.0177	-72.1			317.9	14.2	249.
38	194.8	10518.	53.0	.272	153.2	.0189	-73.3			318.9	11.1	221.
39	188.3	10717.	54.6	.290	158.4	.0203	-74.1			320.8	10.6	224.
40	181.9	10918.	53.1	.292	154.8	.0218	-75.1			322.3	8.4	234.
41	175.3	11132.	54.4	.310	159.0	.0233	-75.6			324.9	4.5	263.
42	168.9	11347.	56.9	.337	166.0	.0249	-75.4			328.8	6.8	251.
43	162.7	11564.	60.5	.372	176.7	.0266	-75.4			332.3	11.6	244.
44	156.5	11788.	60.9	.389	178.4	.0284	-76.2			334.6	12.7	247.
45	151.1	11990.	59.5	.394	175.7	.0301	-77.8			335.2	19.1	234.
46	144.0	12266.	61.1	.424	179.7	.0323	-76.7			341.8	12.9	250.
47	137.8	12519.	60.5	.439	178.1	.0344	-77.0			345.6	5.0	318.
48	131.6	12784.	58.7	.446	172.9	.0366	-77.3			349.7	5.2	247.
49	126.9	12992.	58.5	.461	173.0	.0383	-77.8			352.3	11.3	255.

STATION: SOUTH POLE			LAUNCH DATE: 29 SEP 89				233 Z	ECC	SONDE: 4A4427			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	122.0	13217.	57.3	.470	169.6	.0401	-78.1			355.8	11.8	256.
51	117.2	13447.	56.4	.481	166.6	.0419	-77.8			360.4	10.8	230.
52	112.6	13676.	49.0	.435	144.8	.0436	-77.8			364.6	10.4	232.
53	108.1	13909.	42.0	.389	124.1	.0451	-77.8			368.8	6.2	220.
54	103.9	14135.	36.7	.353	108.9	.0463	-78.7			371.4	5.8	182.
55	99.8	14364.	34.3	.344	102.2	.0475	-79.6			374.0	6.8	238.
56	95.6	14608.	33.8	.354	100.2	.0486	-78.7			380.3	9.9	250.
57	91.8	14838.	35.4	.386	106.1	.0497	-80.5			381.2	7.0	232.
58	88.0	15077.	35.3	.401	105.4	.0509	-79.9			387.1	3.0	191.
59	84.0	15341.	30.9	.368	92.2	.0521	-79.9			392.3	3.7	134.
60	80.2	15603.	25.1	.313	74.6	.0532	-79.3			398.7	2.4	192.
61	76.8	15848.	22.8	.297	68.5	.0540	-80.8			400.5	8.8	258.
62	73.7	16080.	22.5	.305	67.4	.0547	-80.8			405.3	11.8	242.
63	70.6	16323.	25.5	.361	76.4	.0555	-80.5			410.9	6.7	192.
64	67.8	16551.	31.1	.459	93.1	.0564	-80.5			415.7	5.7	132.
65	65.0	16790.	34.5	.531	103.1	.0574	-79.9			422.1	9.8	106.
66	62.5	17012.	37.0	.592	110.2	.0585	-79.3			428.1	6.7	118.
67	59.9	17252.	39.8	.664	119.5	.0598	-80.8			430.0	4.4	229.
68	57.2	17513.	39.0	.682	116.5	.0612	-80.2			437.1	2.3	240.
69	54.6	17776.	37.7	.690	112.5	.0626	-79.6			444.3	3.8	262.
70	52.0	18052.	36.8	.708	110.2	.0640	-80.5			448.4	8.1	249.
71	49.4	18341.	36.2	.733	108.8	.0655	-80.8			454.3	6.9	239.
72	47.0	18622.	36.1	.768	108.3	.0669	-80.8			460.8	6.2	241.
73	44.8	18892.	35.7	.797	106.9	.0683	-80.5			467.9	5.9	252.
74	42.5	19191.	36.1	.849	107.1	.0697	-78.7			479.5	5.0	256.
75	40.8	19424.	38.8	.951	115.2	.0709	-78.4			485.8	4.7	238.
76	39.0	19681.	38.4	.985	113.6	.0723	-78.1			492.8	9.9	196.
77	37.2	19950.	35.8	.962	106.9	.0737	-79.6			495.8	5.9	210.
78	35.5	20215.	34.6	.975	103.1	.0750	-79.6			502.5	3.3	291.
79	33.8	20495.	35.8	1.059	106.3	.0763	-78.4			512.7	5.0	219.
80	32.2	20772.	40.4	1.255	119.5	.0777	-77.8			521.3	5.6	203.
81	30.9	21007.	47.9	1.550	141.6	.0791	-77.8			527.5	4.5	184.
82	29.5	21273.	54.7	1.854	161.1	.0809	-77.0			536.8	2.3	209.
83	28.1	21554.	62.2	2.214	181.7	.0831	-75.6			548.1	3.7	247.
84	27.1	21764.	71.1	2.624	207.1	.0849	-74.9			556.0	4.6	251.
85	26.0	22005.	88.0	3.385	254.6	.0874	-73.6			566.2	3.6	235.
86	25.0	22235.	90.5	3.620	259.8	.0901	-72.1			576.8	2.6	219.
87	23.9	22501.	91.8	3.841	262.6	.0933	-71.2			587.0	2.2	250.
88	22.9	22754.	91.7	4.004	260.5	.0964	-69.8			598.2	1.7	245.
89	22.0	22994.	89.6	4.073	252.1	.0993	-68.1			610.3	3.3	167.
90	21.2	23217.	85.5	4.033	239.9	.1019	-67.4			618.7	8.9	117.
91	20.2	23509.	82.9	4.104	232.3	.1051	-67.0			628.6	13.5	95.
92	19.4	23752.	80.2	4.134	224.7	.1077	-67.2			635.2	10.3	108.
93	18.7	23974.	77.7	4.155	218.1	.1099	-67.4			641.3	10.7	135.
94	17.8	24272.	75.8	4.258	211.3	.1129	-66.0			655.0	11.2	108.
95	17.0	24552.	72.8	4.282	202.2	.1157	-65.2			666.2	10.3	88.
96	16.5	24735.	69.2	4.194	189.9	.1173	-62.8			679.4	3.4	75.
97	15.8	25003.	65.4	4.139	177.1	.1196	-60.1			696.9	4.3	282.
98	15.0	25329.	60.8	4.053	163.5	.1223	-58.5			712.6	3.9	256.
99	14.4	25586.	58.5	4.063	157.2	.1242	-58.3			721.5	1.2	56.
100	13.8	25854.	55.7	4.036	149.4	.1261	-57.8			732.1	7.0	25.
101	13.2	26135.	53.6	4.061	142.8	.1280	-56.3			746.7	8.7	22.
102	12.7	26381.	51.5	4.055	136.3	.1297	-55.2			759.0	5.9	32.
103	12.1	26691.	51.5	4.256	135.1	.1316	-53.2			776.4	3.0	33.
104	11.6	26963.	48.6	4.190	127.5	.1333	-53.1			786.3	2.7	74.

STATION: SOUTH POLE LAUNCH DATE: 29 SEP 89 233 Z ECC SONDE: 4A4427

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	11.0	27306.	45.7	4.155	120.0	.1353	-53.1			798.4	5.7	99.
106	10.6	27546.	40.8	3.849	105.8	.1366	-50.4			816.5	9.0	98.
107	10.0	27927.	35.8	3.580	92.5	.1384	-49.5			833.6	8.9	76.
108	9.3	28376.	31.3	3.351	80.1	.1403	-47.5			857.9	8.9	76.

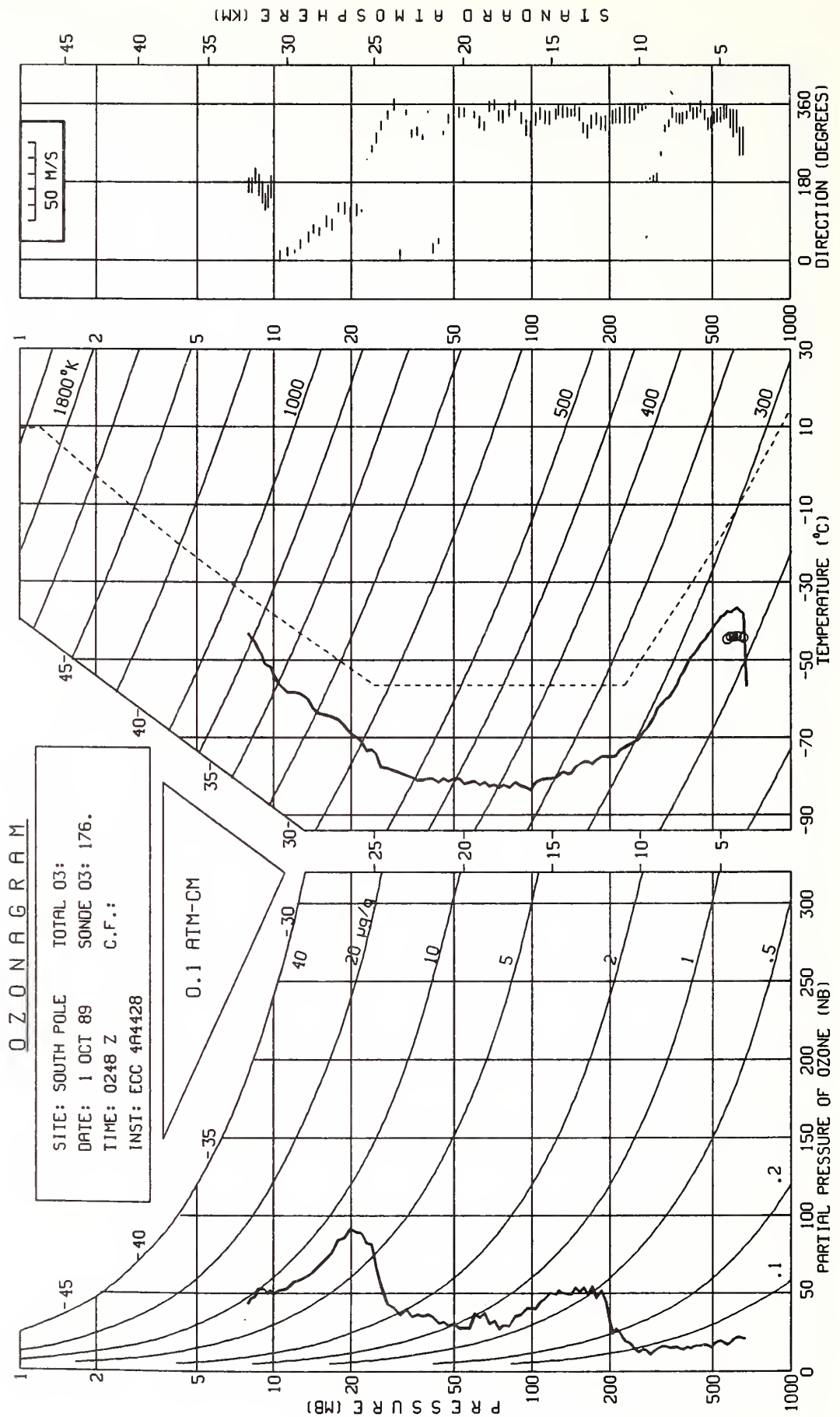
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
17.9	15.9	48.0	35.7	37.0	75.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110129098903		99			ECC TOTAL O3 FROM SONDE DATA 166
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110229098903	662	19-58		500	16-48275 14 300 15-65280 11 200 49-72245 14
1110329098903	150	60-78236	18	100	34-80235 7 70 27-81179 6 50 36-81241 7
1110429098903	30	52-77200	320.0	82-67 98	1310.0 36-50 76 9 645 18-47222 31
1110529098903	611	18-42245	26	218	31-73278 13 117 56-78230 11 60 40-81229 4
1110629098903	34	36-78219	527.1	71-75251	526.0 88-74235 422.9 92-70245 2
1110729098903	17.0	73-65	88	1015.0	61-59256 4 9.3 31-48 76 9



STATION: SOUTH POLE LAUNCH DATE: 1 OCT 89 248 Z ECC SONDE: 4A4428
 SURFACE CONDITIONS: PRESSURE 675.3 MB, TEMPERATURE -57.0 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.2 ORD; HUM 33.0 % AT 77.0 ORD; TBOX 25.0 C AT 72.4 ORD;
 O3 ORD ZERO 34.6, BKGND 35.0, CAL 73.0; O3 BKGND 0.055 MICROAMP; FLOW RATE 26.5 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 176.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	675.3	2835.	21.3	.032	56.9	.0000	-57.0			241.8		
1	658.0	3006.	21.3	.032	52.4	.0004	-38.2	-44.5	52.5	264.8	18.4	276.
2	639.0	3208.	21.9	.034	53.8	.0009	-37.7	-44.2	51.6	267.6	18.4	276.
3	620.0	3417.	21.9	.035	53.6	.0014	-36.7	-44.1	47.0	271.0	14.5	320.
4	603.0	3609.	20.6	.034	50.5	.0019	-37.3	-44.3	48.5	272.6	17.7	317.
5	587.0	3795.	18.5	.032	45.4	.0023	-37.9	-44.2	52.9	273.9	12.2	328.
6	570.0	3997.	17.2	.030	42.2	.0028	-37.7	-44.9	47.8	276.5	9.6	345.
7	556.0	4169.	18.4	.033	45.3	.0031	-38.6			277.4	9.6	343.
8	540.0	4369.	19.7	.036	48.5	.0035	-39.0			279.2	9.0	336.
9	524.0	4575.	19.2	.037	47.6	.0040	-40.4			280.0	8.5	334.
10	510.0	4759.	17.9	.035	44.6	.0044	-41.2			281.1	7.8	329.
11	495.0	4961.	15.3	.031	38.3	.0048	-42.5			282.0	7.3	318.
12	481.0	5155.	16.6	.035	41.8	.0051	-43.7			282.8	7.9	316.
13	467.0	5352.	17.1	.037	43.2	.0055	-45.0			283.6	7.6	337.
14	451.0	5585.	16.6	.037	42.3	.0060	-46.0			285.2	7.8	355.
15	437.0	5794.	16.6	.038	42.5	.0064	-47.5			285.9	6.9	341.
16	423.0	6009.	16.1	.038	41.4	.0068	-48.8			286.9	7.4	340.
17	410.0	6213.	14.8	.036	38.2	.0072	-49.8			288.1	5.8	353.
18	398.0	6407.	15.7	.039	40.7	.0075	-51.4			288.6	5.2	335.
19	386.0	6605.	14.0	.036	36.8	.0079	-53.1			288.9	7.2	328.
20	374.0	6808.	14.4	.039	38.1	.0082	-54.7			289.4	6.8	328.
21	363.0	6998.	15.7	.043	41.9	.0086	-56.8			289.0	6.0	330.
22	351.0	7210.	15.2	.043	40.7	.0090	-58.2			290.0	6.4	341.
23	340.0	7410.	15.1	.044	40.9	.0094	-59.7			290.5	4.3	317.
24	328.0	7634.	15.9	.048	43.1	.0098	-60.3			292.7	4.2	304.
25	317.0	7846.	15.9	.050	43.4	.0102	-61.7			293.6	2.5	246.
26	305.0	8085.	14.6	.048	40.0	.0107	-62.7			295.5	5.9	191.
27	296.0	8269.	12.9	.044	35.7	.0110	-65.0			294.8	3.7	189.
28	287.0	8456.	10.7	.037	30.0	.0113	-66.4			295.4	1.0	188.
29	277.0	8670.	13.7	.049	38.6	.0116	-68.1			296.0	1.4	353.
30	269.0	8846.	14.1	.052	39.7	.0119	-68.9			297.2	4.1	353.
31	259.0	9071.	12.3	.047	35.2	.0123	-70.7			297.8	5.9	350.
32	250.0	9281.	14.4	.058	41.2	.0127	-71.2			300.1	7.7	338.
33	240.0	9522.	18.1	.075	51.9	.0132	-71.9			302.6	10.7	336.
34	230.0	9772.	19.4	.084	55.8	.0138	-72.6			305.2	11.1	337.
35	220.0	10033.	24.2	.110	69.9	.0145	-73.3			308.0	9.9	335.
36	212.0	10249.	27.3	.129	79.5	.0153	-74.9			308.9	9.2	333.
37	206.0	10416.	24.6	.119	71.8	.0159	-75.1			311.0	8.6	331.
38	200.0	10587.	31.8	.159	92.8	.0165	-75.1			313.7	8.8	326.
39	193.0	10794.	45.0	.233	131.3	.0174	-75.1			316.9	9.7	317.
40	185.7	11017.	51.7	.278	150.7	.0188	-75.1			320.4	8.3	317.
41	178.3	11253.	47.1	.264	137.9	.0205	-75.9			322.8	7.8	327.
42	171.1	11490.	54.4	.318	160.1	.0220	-77.0			324.9	8.7	319.
43	165.0	11699.	49.2	.298	144.4	.0235	-76.4			329.2	8.3	297.
44	159.0	11913.	53.9	.339	158.2	.0250	-76.4			332.7	7.2	306.
45	153.2	12126.	50.9	.332	149.9	.0265	-77.0			335.3	8.3	338.
46	147.6	12340.	53.8	.364	159.1	.0280	-77.8			337.4	7.0	345.
47	142.6	12536.	49.5	.347	147.4	.0294	-79.3			338.3	5.0	341.
48	137.5	12743.	49.8	.362	148.6	.0308	-79.6			341.3	6.1	342.
49	132.5	12953.	50.3	.380	149.7	.0323	-79.0			346.0	8.3	345.

STATION: SOUTH POLE			LAUNCH DATE: 1 OCT 89			248 Z	ECC SONDE: 4A4428					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	127.5	13172.	52.1	.409	155.8	.0338	-79.9			348.2	7.0	348.
51	124.5	13306.	49.5	.398	148.2	.0347	-80.5			349.4	6.7	338.
52	117.7	13623.	50.5	.429	151.5	.0369	-80.8			354.5	8.8	329.
53	112.8	13863.	47.0	.417	141.1	.0386	-80.8			358.9	8.5	331.
54	108.0	14107.	44.8	.415	134.7	.0402	-81.1			362.7	8.2	339.
55	103.5	14346.	40.3	.389	121.7	.0416	-81.7			366.0	8.4	327.
56	99.2	14583.	40.5	.408	123.4	.0429	-83.7			366.6	10.0	303.
57	95.5	14794.	40.5	.424	123.0	.0441	-83.1			371.9	10.3	306.
58	90.9	15070.	36.7	.404	111.3	.0457	-82.7			377.8	7.4	329.
59	86.4	15353.	35.5	.411	107.1	.0471	-81.7			385.3	6.6	358.
60	81.9	15652.	29.2	.357	88.6	.0485	-83.1			388.6	9.2	348.
61	77.4	15968.	29.6	.382	89.4	.0498	-82.4			396.3	7.8	332.
62	74.5	16181.	27.3	.366	82.9	.0507	-83.1			399.2	6.3	334.
63	71.5	16410.	32.4	.453	98.1	.0516	-82.4			405.4	6.9	359.
64	68.5	16649.	30.8	.450	93.4	.0527	-82.7			409.7	6.9	355.
65	65.6	16891.	37.4	.570	112.7	.0538	-81.7			416.9	5.4	310.
66	62.7	17144.	34.4	.549	104.2	.0551	-82.4			420.9	7.6	320.
67	60.0	17391.	37.0	.617	111.3	.0563	-81.4			428.4	4.2	336.
68	57.5	17629.	27.7	.482	83.4	.0574	-81.7			432.9	.5	342.
69	55.0	17878.	27.9	.507	84.4	.0584	-82.1			437.7	5.7	342.
70	52.5	18140.	27.7	.528	83.3	.0594	-80.8			446.5	7.3	342.
71	50.0	18415.	30.4	.608	91.2	.0605	-80.8			452.8	7.5	342.
72	47.6	18691.	29.4	.618	88.6	.0617	-81.4			457.7	5.9	327.
73	45.6	18933.	31.8	.697	95.5	.0627	-80.8			464.8	2.1	295.
74	43.6	19185.	31.0	.711	93.6	.0638	-81.7			468.5	3.6	44.
75	41.6	19449.	34.6	.832	103.9	.0649	-80.8			477.2	6.1	26.
76	39.7	19712.	36.4	.917	109.3	.0662	-80.8			483.6	.7	343.
77	37.8	19988.	35.3	.934	106.2	.0676	-81.1			489.6	3.8	285.
78	36.0	20263.	36.4	1.011	109.5	.0690	-81.1			496.5	6.2	298.
79	34.3	20535.	35.0	1.020	104.9	.0703	-80.5			505.0	5.0	293.
80	32.6	20823.	39.7	1.218	118.6	.0718	-79.9			514.1	3.4	342.
81	31.0	21108.	36.0	1.161	107.1	.0733	-79.3			523.1	6.1	14.
82	29.3	21429.	40.8	1.392	121.2	.0750	-78.7			533.2	7.2	360.
83	27.7	21749.	42.8	1.545	126.7	.0768	-78.1			543.5	5.4	336.
84	26.2	22067.	54.2	2.069	160.2	.0788	-77.8			553.0	5.4	311.
85	25.0	22338.	66.6	2.664	193.4	.0809	-74.3			570.4	6.6	283.
86	24.0	22576.	81.7	3.404	236.1	.0831	-73.3			580.0	4.5	257.
87	23.0	22825.	82.2	3.574	237.8	.0858	-73.6			586.4	.6	233.
88	21.9	23114.	88.9	4.059	254.0	.0891	-71.2			601.8	1.6	115.
89	20.9	23391.	89.3	4.273	253.9	.0923	-70.0			613.3	8.0	117.
90	19.8	23713.	91.5	4.621	258.6	.0961	-68.9			626.3	9.4	105.
91	18.8	24025.	85.8	4.564	240.4	.0998	-67.2			641.0	8.3	121.
92	17.8	24356.	84.3	4.736	234.5	.1035	-65.6			656.2	5.9	122.
93	16.8	24708.	76.2	4.536	211.2	.1072	-64.8			669.7	7.7	83.
94	16.0	25006.	72.0	4.500	199.2	.1101	-64.4			680.4	7.3	90.
95	15.0	25401.	67.5	4.500	186.2	.1137	-64.0			694.4	4.9	66.
96	14.2	25738.	63.7	4.486	174.7	.1166	-62.7			709.9	6.0	72.
97	13.6	26005.	61.5	4.522	166.9	.1187	-60.3			726.8	6.5	53.
98	12.7	26434.	58.8	4.630	158.3	.1220	-58.9			746.1	5.6	38.
99	12.0	26790.	57.5	4.792	154.7	.1246	-58.5			759.5	1.9	21.
100	11.3	27168.	53.1	4.699	142.8	.1272	-58.5			772.7	6.1	20.
101	10.5	27632.	52.2	4.971	139.1	.1303	-56.5			796.5	7.1	10.
102	10.0	27943.	49.5	4.950	130.5	.1323	-54.2			816.2	4.1	191.
103	9.7	28126.	51.7	5.319	135.0	.1334	-52.0			831.2	14.3	169.
104	9.5	28309.	50.1	5.302	130.5	.1345	-51.7			839.1	14.8	148.

STATION: SOUTH POLE			LAUNCH DATE: 1 OCT 89 248 Z				ECC SONDE: 4A4428					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOTZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	9.2	28483.	52.6	5.717	136.8	.1355	-51.2			847.3	10.9	135.
106	8.9	28670.	53.0	5.928	136.5	.1367	-48.9			863.0	14.2	157.
107	8.7	28864.	52.8	6.083	135.0	.1379	-47.5			876.0	13.7	174.
108	8.4	29066.	47.9	5.689	121.6	.1392	-45.7			890.5	10.1	194.
109	8.2	29276.	46.9	5.748	118.5	.1403	-44.6			903.0	9.9	173.
110	7.9	29476.	43.4	5.480	109.0	.1414	-43.4			915.3	9.9	173.

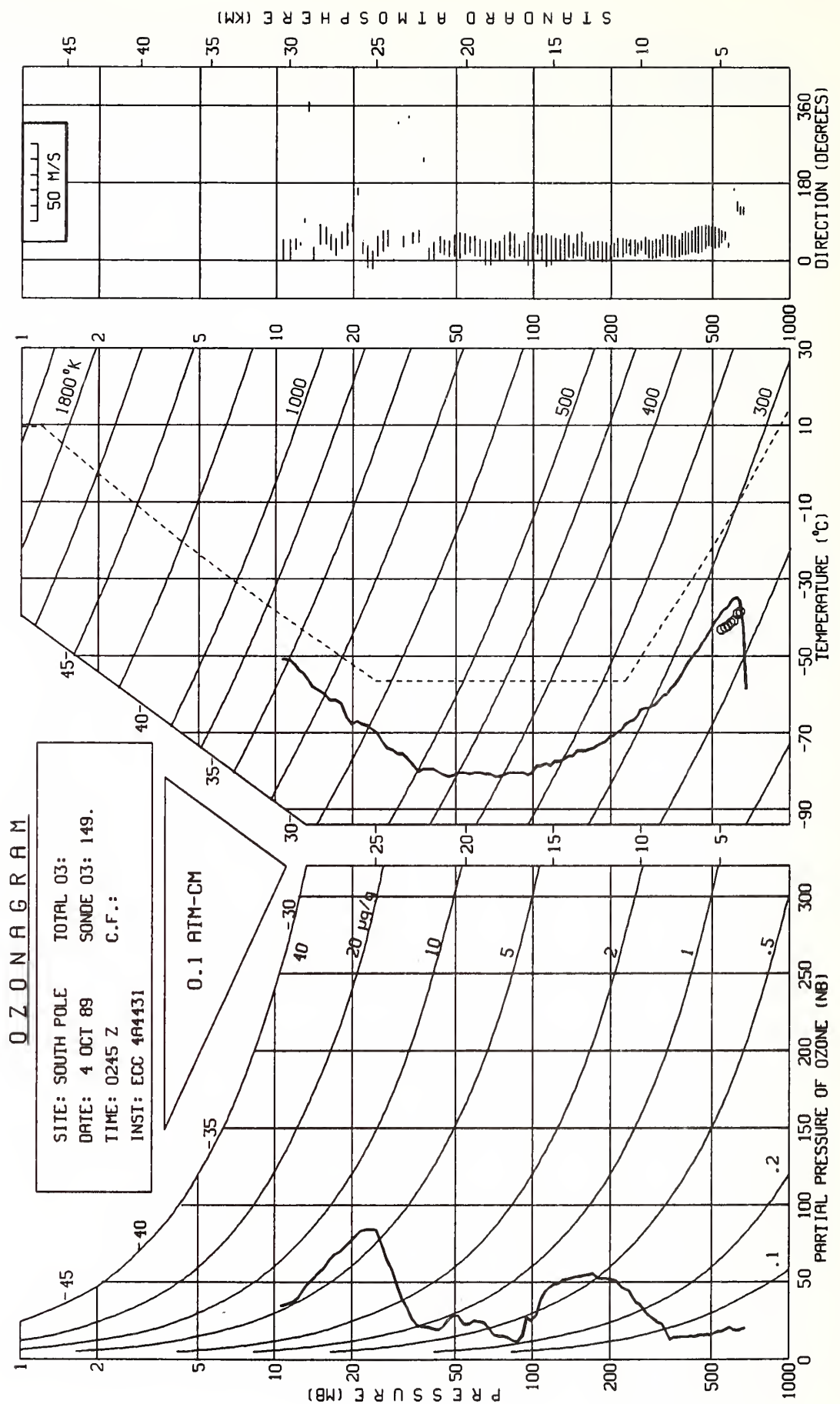
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
19.6	14.7	40.0	37.6	32.8	70.2	57.0	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110101108903			99		ECC TOTAL O3 FROM SONDE DATA 176
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110201108903	675	21-57		500	16-42322 7 300 14-64190 5 200 32-75326 9
1110301108903	150	53-77342	8	100	40-83308 10 70 32-83357 7 50 30-81342 8
1110401108903	30	39-79215	720.0	91-69107	910.0 50-54191 4 658 21-38276 18
1110501108903	570	17-38345	10	259	12-71350 6 186 52-75317 8 82 29-83348 9
1110601108903	66	37-82310	5	60	37-81336 4 58 28-82342 126.2 54-78311 5
1110701108903	25.0	67-74283	724.0	82-73257	512.7 59-59 38 611.3 53-59 20 6
1110801108903	8.7	53-48174	14	7.9	43-43173 10



STATION: SOUTH POLE LAUNCH DATE: 4 OCT 89 245 Z ECC SONDE: 4A4431
 SURFACE CONDITIONS: PRESSURE 678.7 MB, TEMPERATURE -58.7 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 24.5 C AT 71.5 ORD;
 O3 ORD ZERO 32.3, BKGND 32.9, CAL 66.9; O3 BKGND 0.091 MICROAMP; FLOW RATE 26.4 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 149.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	678.7	2835.	20.3	.030	54.5	.0000	-58.7			239.6		
1	661.0	3007.	19.8	.030	49.6	.0004	-42.9			259.1	5.3	116.
2	643.0	3196.	18.8	.029	45.8	.0008	-36.1	-38.7	78.4	268.9	5.3	116.
3	627.0	3371.	18.8	.030	45.5	.0012	-35.0	-39.3	65.9	272.1	6.1	126.
4	609.0	3575.	19.2	.032	46.7	.0016	-35.3	-41.0	57.1	274.1	1.4	166.
5	591.0	3783.	20.7	.035	50.5	.0021	-36.1	-41.6	57.9	275.5	.3	60.
6	576.0	3961.	19.9	.035	48.7	.0025	-37.4	-42.4	60.6	276.0	3.0	36.
7	560.0	4156.	18.9	.034	46.5	.0029	-38.0	-42.8	61.9	277.6	5.1	57.
8	543.0	4367.	18.0	.033	44.4	.0034	-38.9	-43.3	64.4	278.9	8.2	55.
9	529.0	4546.	18.2	.034	45.0	.0038	-40.2			279.5	12.3	53.
10	512.0	4768.	16.8	.033	41.7	.0042	-41.4			280.6	13.6	53.
11	496.0	4983.	15.7	.032	39.5	.0046	-42.9			281.3	12.5	55.
12	482.0	5176.	16.2	.034	40.9	.0050	-44.5			281.7	13.0	57.
13	469.0	5358.	15.7	.033	39.9	.0053	-45.8			282.3	15.6	55.
14	453.0	5589.	16.1	.036	41.2	.0058	-47.1			283.5	16.3	50.
15	440.0	5781.	15.2	.035	39.2	.0061	-48.6			284.0	17.5	48.
16	427.0	5978.	14.8	.035	38.3	.0065	-49.6			285.1	16.1	48.
17	415.0	6164.	14.9	.036	38.7	.0068	-50.7			286.0	14.0	44.
18	403.0	6355.	14.8	.037	38.7	.0071	-51.9			286.8	13.7	39.
19	392.0	6533.	14.8	.038	38.9	.0075	-53.3			287.3	15.3	40.
20	380.0	6733.	14.8	.039	39.2	.0078	-54.8			287.9	14.1	38.
21	369.0	6920.	14.4	.039	38.2	.0082	-56.3			288.4	11.4	29.
22	357.0	7129.	14.4	.040	38.6	.0085	-57.8			289.1	14.0	32.
23	345.0	7345.	13.0	.038	34.9	.0089	-58.5			291.0	14.5	32.
24	333.0	7567.	17.7	.053	47.9	.0093	-60.1			291.7	14.1	36.
25	320.0	7815.	23.3	.073	63.3	.0099	-60.6			294.3	12.3	38.
26	310.0	8012.	23.8	.077	65.1	.0105	-61.7			295.5	10.5	29.
27	300.0	8214.	25.6	.085	70.3	.0111	-62.8			296.7	12.2	27.
28	290.0	8423.	27.4	.094	75.3	.0118	-63.2			299.0	11.6	25.
29	282.0	8595.	29.1	.103	80.3	.0124	-63.8			300.6	11.2	27.
30	273.0	8794.	32.0	.117	88.3	.0131	-63.8			303.4	10.9	34.
31	263.0	9022.	35.5	.135	98.0	.0141	-64.2			306.1	6.6	34.
32	255.0	9211.	36.7	.144	102.1	.0149	-65.8			306.4	7.2	28.
33	247.0	9404.	39.9	.162	111.7	.0159	-66.8			307.7	10.7	29.
34	238.0	9628.	44.8	.188	125.7	.0170	-67.2			310.3	9.5	31.
35	230.0	9834.	45.5	.198	128.0	.0182	-67.9			312.4	9.0	33.
36	222.0	10046.	46.7	.210	132.1	.0195	-69.2			313.6	12.3	30.
37	212.0	10321.	50.7	.239	144.1	.0212	-70.1			316.3	12.0	29.
38	205.0	10520.	51.8	.253	148.0	.0226	-71.0			317.9	8.5	24.
39	198.6	10708.	51.9	.261	148.3	.0238	-71.2			320.5	9.1	18.
40	191.6	10919.	52.5	.274	150.9	.0253	-72.4			321.8	12.9	19.
41	184.9	11128.	52.4	.283	151.2	.0267	-72.9			324.3	13.0	20.
42	178.1	11348.	53.1	.298	153.6	.0283	-73.4			327.0	11.2	26.
43	171.5	11568.	55.8	.325	161.9	.0299	-74.2			329.3	10.9	24.
44	165.5	11776.	55.0	.332	159.7	.0314	-74.4			332.3	10.9	18.
45	159.8	11979.	54.5	.341	158.8	.0329	-74.9			334.7	10.8	23.
46	153.9	12198.	53.8	.350	156.8	.0345	-74.9			338.4	15.9	38.
47	148.2	12417.	53.7	.362	156.5	.0361	-74.9			342.0	14.1	35.
48	142.8	12632.	53.1	.372	155.8	.0377	-76.3			343.4	9.6	22.
49	137.3	12858.	52.2	.380	153.0	.0393	-76.3			347.2	15.0	33.

STATION: SOUTH POLE			LAUNCH DATE: 4 OCT 89				245 Z	ECC	SONDE: 4A4431			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	132.0	13085.	51.6	.391	152.0	.0409	-77.1			349.7	17.1	31.
51	126.9	13311.	49.2	.388	145.2	.0425	-77.6			352.6	13.8	24.
52	122.0	13536.	48.7	.399	143.9	.0440	-77.6			356.6	13.9	26.
53	117.1	13770.	46.7	.399	138.7	.0455	-78.8			358.7	18.9	23.
54	112.2	14014.	43.8	.390	129.7	.0470	-78.2			364.2	21.3	23.
55	107.8	14242.	38.3	.355	113.8	.0484	-78.8			367.3	16.2	28.
56	103.6	14468.	28.5	.275	84.7	.0495	-78.8			371.5	12.1	36.
57	99.2	14714.	25.2	.254	75.5	.0504	-80.6			372.6	16.7	32.
58	95.4	14934.	27.3	.286	82.1	.0512	-81.2			375.5	21.3	26.
59	91.8	15151.	15.4	.168	46.1	.0520	-80.6			380.9	12.3	22.
60	88.0	15389.	11.7	.133	35.2	.0524	-80.6			385.6	8.3	23.
61	84.1	15645.	12.2	.145	36.6	.0529	-80.6			390.6	15.4	33.
62	80.6	15885.	14.0	.174	41.9	.0533	-80.6			395.4	15.5	38.
63	77.0	16142.	15.3	.199	46.0	.0538	-81.2			399.2	15.9	30.
64	73.7	16388.	15.2	.206	45.9	.0543	-81.6			403.6	12.9	21.
65	70.8	16613.	16.1	.227	48.6	.0548	-81.6			408.3	9.7	24.
66	67.9	16848.	20.4	.300	61.4	.0554	-80.9			414.5	16.7	18.
67	64.8	17111.	23.9	.369	71.8	.0561	-80.9			420.1	15.1	16.
68	61.7	17387.	24.7	.400	74.2	.0571	-80.6			426.7	10.9	28.
69	59.1	17630.	25.2	.426	75.5	.0579	-80.6			432.0	12.7	33.
70	56.6	17874.	23.0	.406	69.0	.0587	-80.9			436.7	10.4	37.
71	54.0	18139.	23.0	.426	68.9	.0596	-80.6			443.3	13.6	37.
72	51.6	18395.	28.4	.550	85.1	.0605	-80.6			449.1	16.6	34.
73	49.2	18663.	28.4	.577	85.3	.0615	-81.2			453.8	13.7	33.
74	47.0	18920.	25.7	.547	77.5	.0625	-81.6			459.0	10.2	27.
75	45.0	19164.	21.4	.476	64.3	.0633	-81.2			465.5	9.7	31.
76	43.1	19407.	19.3	.448	57.7	.0640	-80.6			472.8	10.6	36.
77	41.0	19690.	20.1	.490	60.0	.0648	-79.7			481.9	11.1	22.
78	39.2	19944.	21.0	.536	62.6	.0655	-79.7			488.1	7.4	15.
79	37.5	20195.	21.4	.571	63.9	.0662	-79.7			494.3	2.7	235.
80	35.9	20442.	21.8	.607	65.3	.0670	-80.3			498.9	8.0	56.
81	34.1	20734.	26.5	.777	78.5	.0679	-78.5			511.1	7.0	51.
82	32.8	20956.	33.0	1.006	97.0	.0688	-77.1			520.5	1.0	334.
83	31.2	21245.	39.4	1.263	115.1	.0701	-75.7			531.7	7.2	43.
84	29.9	21491.	48.1	1.609	140.6	.0715	-75.7			538.2	.9	321.
85	28.6	21748.	58.2	2.035	169.2	.0733	-74.7			548.0	1.6	0.
86	27.2	22041.	65.3	2.401	189.6	.0756	-74.2			557.3	10.7	51.
87	26.0	22305.	75.4	2.900	216.8	.0780	-72.4			569.5	13.1	44.
88	24.8	22584.	84.1	3.391	239.0	.0808	-70.1			584.0	13.2	32.
89	23.7	22855.	84.2	3.553	238.2	.0839	-69.2			594.2	11.6	1.
90	22.7	23113.	84.2	3.709	237.4	.0867	-68.3			604.1	14.3	8.
91	21.7	23383.	83.4	3.843	234.6	.0897	-67.9			613.3	7.0	28.
92	20.7	23667.	80.2	3.874	224.8	.0927	-67.2			623.5	4.7	160.
93	19.8	23935.	76.6	3.869	215.3	.0955	-67.9			629.5	10.2	86.
94	18.9	24216.	73.3	3.878	204.5	.0982	-66.2			643.2	14.7	60.
95	18.0	24514.	69.9	3.883	191.5	.1010	-62.5			664.0	11.3	47.
96	17.1	24831.	67.9	3.971	185.3	.1038	-61.7			676.2	11.1	31.
97	16.3	25128.	64.2	3.939	175.2	.1063	-61.7			685.5	10.0	42.
98	15.6	25401.	59.3	3.801	160.9	.1085	-60.3			698.9	11.4	58.
99	14.8	25730.	56.2	3.797	151.6	.1109	-59.2			713.1	13.3	60.
100	14.0	26079.	51.4	3.671	138.0	.1133	-58.3			727.5	8.4	15.
101	13.4	26356.	48.3	3.604	128.5	.1150	-56.3			743.6	6.7	358.
102	12.9	26598.	44.7	3.465	118.2	.1164	-54.8			756.9	2.5	92.
103	12.4	26852.	40.0	3.226	105.2	.1178	-54.0			768.3	1.9	37.
104	11.9	27117.	37.6	3.160	98.2	.1191	-52.4			783.0	6.9	37.

STATION: SOUTH POLE LAUNCH DATE: 4 OCT 89 245 Z ECC SONDE: 4A4431

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	11.3	27452.	36.4	3.221	94.7	.1206	-51.1			799.2	13.8	23.
106	10.6	27868.	34.8	3.283	90.6	.1224	-51.0			814.5	13.8	23.

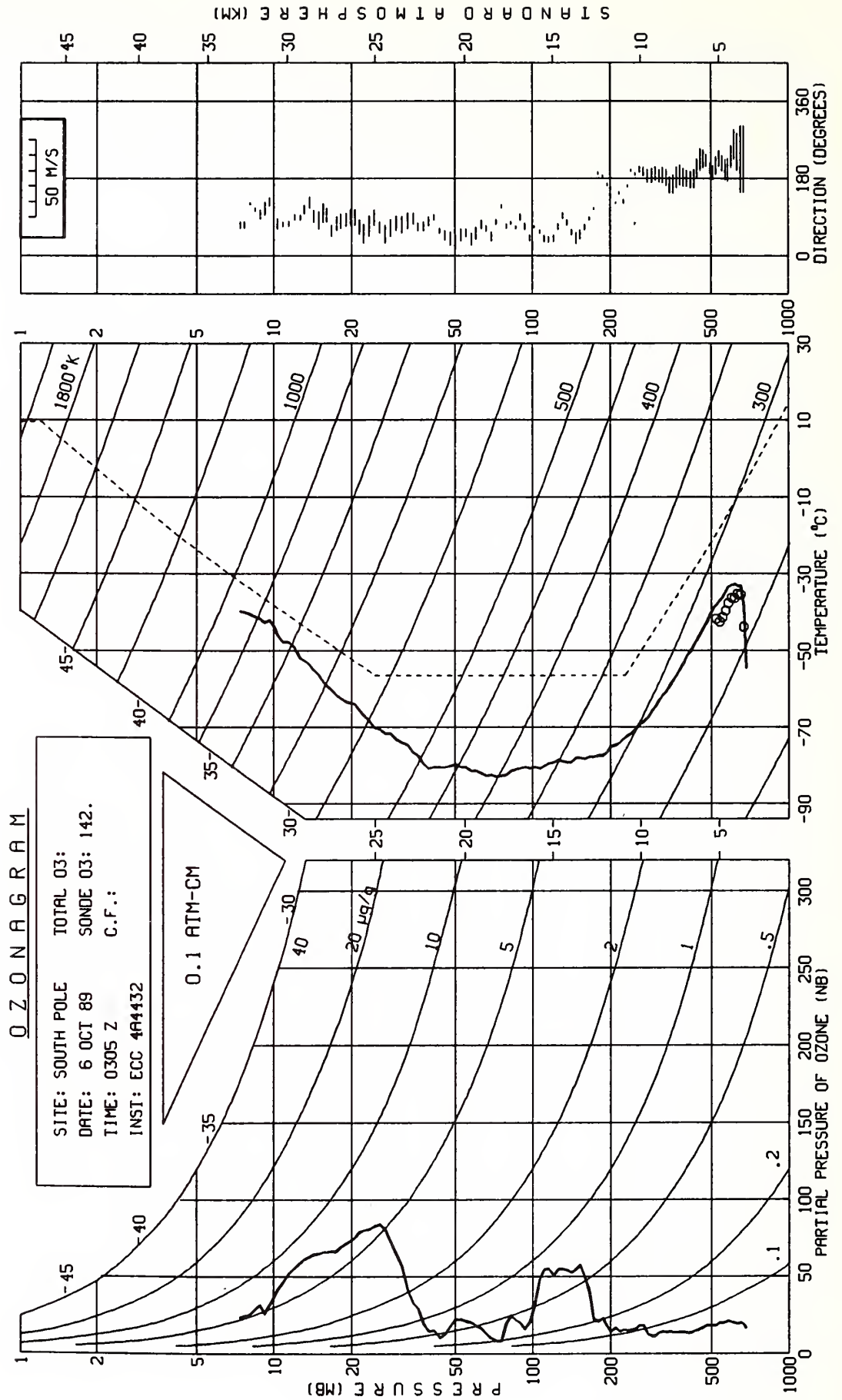
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
18.8	20.1	50.4	25.2	24.2	70.2	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110104108903			99		ECC TOTAL O3 FROM SONDE DATA 149
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110204108903	679	20-59		500	16-43 54 13 300 26-63 27 12 200 52-71 19 9
1110304108903	150	54-75 36 15	100	26-80 33 16	70 17-81 22 12 50 28-81 33 15
1110404108903	30	47-76299	120.0	77-68103	9 661 20-43116 5 643 19-36116 5
1110504108903	609	19-35166	1	357 14-58 32 14	112 44-78 23 21 95 27-81 26 21
1110604108903	88	12-81 23	8	43 19-81 36 11	36 22-80 56 824.8 84-70 32 13
1110704108903	22.7	84-68	8	1418.0 70-63 47	1110.6 35-51 23 14



STATION: SOUTH POLE LAUNCH DATE: 6 OCT 89 305 Z ECC SONDE: 4A4432
 SURFACE CONDITIONS: PRESSURE 686.0 MB, TEMPERATURE -54.9 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 21.5 C AT 69.8 ORD;
 O3 ORD ZERO 34.3, BKGND 34.9, CAL 70.1; O3 BKGND 0.088 MICROAMP; FLOW RATE 27.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 142.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	686.0	2835.	16.3	.024	43.0	.0000	-54.9			243.0		
1	670.0	2991.	18.8	.028	46.3	.0003	-38.8	-44.1	58.3	262.8	43.0	225.
2	652.0	3181.	19.8	.030	47.6	.0007	-33.4	-35.7	81.7	270.9	43.0	225.
3	634.0	3377.	19.3	.030	46.6	.0012	-33.4	-35.5	82.8	273.1	24.0	242.
4	617.0	3568.	19.8	.032	47.5	.0016	-32.9	-36.6	70.4	275.8	19.4	260.
5	600.0	3765.	20.4	.034	49.1	.0020	-33.2	-36.5	73.0	277.7	14.2	231.
6	583.0	3967.	21.3	.037	51.2	.0025	-33.6	-37.9	66.1	279.5	14.8	200.
7	569.0	4137.	20.3	.036	49.3	.0029	-34.9	-39.9	61.2	279.9	13.4	200.
8	553.0	4335.	19.9	.036	48.5	.0033	-36.4	-41.6	59.4	280.5	10.1	215.
9	538.0	4526.	19.8	.037	48.6	.0038	-37.3	-42.8	57.4	281.6	10.3	226.
10	523.0	4721.	18.4	.035	45.1	.0042	-38.4	-42.0	70.2	282.5	11.4	210.
11	509.0	4907.	18.3	.036	45.3	.0046	-39.3			283.6	9.4	193.
12	494.0	5111.	18.4	.037	45.7	.0050	-41.0			284.0	6.8	204.
13	479.0	5320.	18.4	.038	46.2	.0054	-42.9			284.1	7.8	222.
14	466.0	5505.	16.9	.036	42.8	.0058	-44.4			284.6	11.3	225.
15	453.0	5694.	16.0	.035	40.6	.0062	-45.8			285.1	14.3	223.
16	441.0	5872.	15.0	.034	38.3	.0065	-47.2			285.5	12.7	203.
17	428.0	6069.	14.6	.034	37.4	.0069	-48.7			286.0	11.9	179.
18	415.0	6271.	13.6	.033	35.2	.0072	-50.4			286.4	10.7	177.
19	400.0	6511.	13.6	.034	35.5	.0076	-51.8			287.7	10.3	180.
20	388.0	6707.	13.7	.035	35.9	.0079	-53.7			287.7	11.6	182.
21	376.0	6909.	13.7	.036	36.2	.0083	-55.1			288.4	13.0	187.
22	364.0	7115.	13.7	.038	36.6	.0086	-56.8			288.8	13.4	182.
23	353.0	7309.	13.8	.039	36.9	.0089	-58.0			289.8	11.9	167.
24	343.0	7490.	14.3	.042	38.5	.0093	-59.4			290.3	10.7	165.
25	332.0	7693.	13.8	.042	37.6	.0096	-61.0			290.8	10.7	181.
26	321.0	7902.	14.2	.044	38.9	.0100	-61.9			292.3	9.8	188.
27	310.0	8117.	13.7	.044	37.7	.0104	-63.2			293.4	8.6	186.
28	300.0	8318.	11.3	.038	31.4	.0107	-64.8			293.9	8.9	191.
29	290.0	8524.	11.3	.039	31.5	.0110	-66.0			295.1	9.5	186.
30	280.0	8736.	12.7	.045	35.9	.0113	-67.9			295.3	8.5	186.
31	270.0	8954.	18.4	.068	52.0	.0117	-68.7			297.2	5.9	196.
32	260.0	9180.	18.4	.071	52.2	.0123	-69.4			299.4	3.9	201.
33	250.0	9413.	16.1	.064	45.9	.0128	-71.0			300.4	1.6	190.
34	241.0	9630.	15.2	.063	43.5	.0133	-71.9			302.2	1.1	198.
35	234.0	9803.	15.1	.065	43.4	.0136	-72.4			304.0	1.3	162.
36	226.0	10007.	15.6	.069	45.0	.0140	-73.2			305.9	2.4	126.
37	217.0	10244.	14.2	.065	41.2	.0145	-74.4			307.5	1.8	146.
38	210.0	10435.	16.9	.080	49.3	.0149	-74.9			309.6	1.0	123.
39	201.0	10689.	14.1	.070	41.1	.0154	-75.2			313.1	1.6	157.
40	194.4	10882.	17.8	.092	52.2	.0158	-76.8			313.5	1.8	165.
41	186.9	11108.	22.9	.123	67.7	.0164	-77.6			315.7	2.1	184.
42	179.5	11339.	21.1	.118	62.4	.0171	-77.6			319.4	1.8	192.
43	172.6	11563.	22.0	.127	65.2	.0178	-77.9			322.5	1.5	109.
44	166.1	11783.	40.3	.243	119.3	.0186	-77.9			326.1	2.2	86.
45	159.8	12004.	49.4	.309	146.6	.0199	-78.5			328.7	3.3	66.
46	153.2	12244.	57.5	.375	170.2	.0216	-78.2			333.2	6.5	49.
47	147.8	12449.	55.0	.372	162.9	.0232	-78.2			336.6	7.2	41.
48	142.1	12673.	52.6	.370	156.9	.0248	-79.4			338.4	3.8	54.
49	136.6	12897.	54.3	.398	161.7	.0265	-79.4			342.2	3.7	77.

STATION: SOUTH POLE				LAUNCH DATE: 6 OCT 89				305 Z	ECC	SONDE: 4A4432			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	131.3	13122.	55.1	.420	164.0	.0282	-79.1			346.6	3.8	93.	
51	126.1	13352.	55.0	.436	163.5	.0299	-78.8			351.2	3.9	67.	
52	121.1	13582.	50.6	.418	150.9	.0316	-79.4			354.2	4.5	40.	
53	116.0	13826.	55.2	.476	164.6	.0334	-79.7			358.0	3.6	37.	
54	111.3	14060.	54.7	.491	163.8	.0351	-80.3			361.1	4.5	40.	
55	106.8	14293.	48.5	.454	145.7	.0368	-80.9			364.2	2.2	56.	
56	102.0	14552.	31.5	.309	94.5	.0384	-80.6			369.6	1.6	67.	
57	97.8	14789.	20.9	.214	62.9	.0394	-80.9			373.5	3.7	41.	
58	93.9	15018.	16.0	.170	47.9	.0400	-80.6			378.5	4.6	68.	
59	90.0	15257.	19.9	.221	59.8	.0406	-80.9			382.5	4.2	89.	
60	86.2	15500.	21.6	.251	65.1	.0412	-81.2			386.6	2.0	66.	
61	82.7	15732.	24.7	.299	74.4	.0420	-81.6			390.5	1.7	76.	
62	79.3	15967.	19.9	.251	60.2	.0427	-82.6			393.2	2.9	68.	
63	75.9	16212.	8.2	.108	24.9	.0433	-82.9			397.5	2.4	114.	
64	72.4	16475.	8.2	.113	25.0	.0436	-83.2			402.1	3.1	78.	
65	69.3	16719.	10.0	.144	30.4	.0439	-82.6			408.7	5.6	44.	
66	66.4	16957.	12.7	.191	38.6	.0443	-82.9			412.9	4.0	63.	
67	63.3	17224.	16.3	.258	49.3	.0448	-82.2			420.1	5.3	72.	
68	60.5	17477.	18.0	.298	54.3	.0454	-81.6			427.0	7.9	52.	
69	57.8	17734.	20.2	.349	60.7	.0460	-81.6			432.6	7.7	37.	
70	55.2	17992.	21.0	.380	62.8	.0468	-80.6			440.5	5.3	53.	
71	52.7	18254.	22.2	.421	66.7	.0476	-80.6			446.4	7.8	48.	
72	50.2	18528.	22.3	.444	66.5	.0484	-80.0			454.1	10.3	31.	
73	48.0	18782.	17.9	.373	53.6	.0491	-80.3			459.2	8.4	39.	
74	45.8	19046.	12.6	.275	37.7	.0497	-80.6			464.7	6.4	47.	
75	43.7	19311.	10.4	.238	31.1	.0502	-80.6			470.9	3.5	57.	
76	41.6	19589.	14.9	.358	44.5	.0506	-80.6			477.6	3.4	89.	
77	39.5	19881.	14.8	.375	44.6	.0512	-80.9			483.9	5.6	79.	
78	37.8	20129.	19.3	.511	57.6	.0518	-79.7			493.2	6.1	68.	
79	36.0	20407.	29.2	.811	86.2	.0526	-77.6			505.4	5.2	66.	
80	34.4	20668.	33.0	.959	97.1	.0537	-76.8			514.2	7.5	85.	
81	32.7	20961.	40.8	1.248	118.8	.0551	-74.9			526.7	10.3	80.	
82	31.1	21253.	56.6	1.820	164.2	.0568	-74.2			536.4	10.5	72.	
83	29.6	21541.	64.7	2.186	187.1	.0591	-73.4			546.1	9.5	75.	
84	28.2	21826.	72.9	2.585	209.1	.0616	-71.9			557.8	11.3	64.	
85	26.9	22104.	80.5	2.993	231.0	.0644	-71.9			565.3	11.9	50.	
86	25.6	22397.	84.1	3.285	239.9	.0675	-70.8			576.7	7.2	66.	
87	24.4	22682.	83.0	3.402	236.2	.0707	-70.3			586.0	9.9	88.	
88	23.3	22957.	81.0	3.476	228.6	.0737	-68.5			599.0	13.7	69.	
89	22.2	23248.	80.3	3.617	225.2	.0768	-67.2			611.2	12.2	51.	
90	21.4	23470.	79.0	3.692	220.0	.0791	-65.8			622.0	9.3	67.	
91	20.6	23702.	75.5	3.665	208.5	.0814	-64.2			633.6	10.6	89.	
92	19.8	23945.	73.6	3.717	203.0	.0838	-64.0			641.4	10.0	89.	
93	19.0	24198.	71.7	3.774	197.7	.0861	-63.6			650.2	8.7	83.	
94	18.1	24496.	69.3	3.829	190.1	.0888	-62.7			662.3	9.6	80.	
95	17.4	24740.	66.4	3.816	181.6	.0909	-61.9			672.2	9.0	74.	
96	16.7	24995.	66.5	3.982	180.5	.0931	-60.4			684.9	7.3	57.	
97	16.0	25262.	66.0	4.125	178.2	.0953	-59.4			696.8	9.1	94.	
98	15.5	25462.	66.0	4.258	177.3	.0970	-58.3			706.6	12.3	99.	
99	14.9	25711.	64.9	4.356	173.0	.0990	-56.6			720.3	11.3	82.	
100	14.2	26017.	64.5	4.542	171.0	.1014	-55.3			734.8	7.9	91.	
101	13.7	26247.	63.0	4.599	165.9	.1033	-53.8			747.3	7.4	124.	
102	13.1	26535.	61.5	4.695	161.3	.1054	-52.9			760.2	5.9	107.	
103	12.6	26786.	59.1	4.690	154.4	.1073	-52.2			770.9	3.1	89.	
104	12.0	27104.	55.4	4.617	143.0	.1095	-49.3			792.0	3.6	89.	

STATION: SOUTH POLE			LAUNCH DATE: 6 OCT 89 305 Z			ECC SONDE: 4A4432						
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	11.4	27442.	51.9	4.553	133.0	.1117	-48.0			808.5	3.5	74.
106	10.8	27798.	46.1	4.269	118.3	.1139	-48.0			821.1	3.2	72.
107	10.3	28112.	41.2	4.000	104.8	.1155	-46.1			839.4	7.1	74.
108	10.0	28310.	36.8	3.680	92.6	.1165	-43.9			854.5	5.7	100.
109	9.6	28578.	31.7	3.299	79.4	.1176	-42.2			870.6	5.3	125.
110	9.2	28857.	26.2	2.842	65.7	.1185	-42.9			878.3	8.2	109.
111	8.8	29157.	31.5	3.571	78.6	.1195	-42.0			893.3	6.2	96.
112	8.4	29464.	28.6	3.393	71.3	.1206	-41.4			907.1	2.0	108.
113	8.0	29786.	25.2	3.134	62.6	.1216	-40.7			922.2	1.3	121.
114	7.7	30125.	24.4	3.190	60.5	.1226	-40.2			937.6	4.2	71.
115	7.4	30379.	23.5	3.189	58.3	.1233	-40.0			948.2	4.2	71.

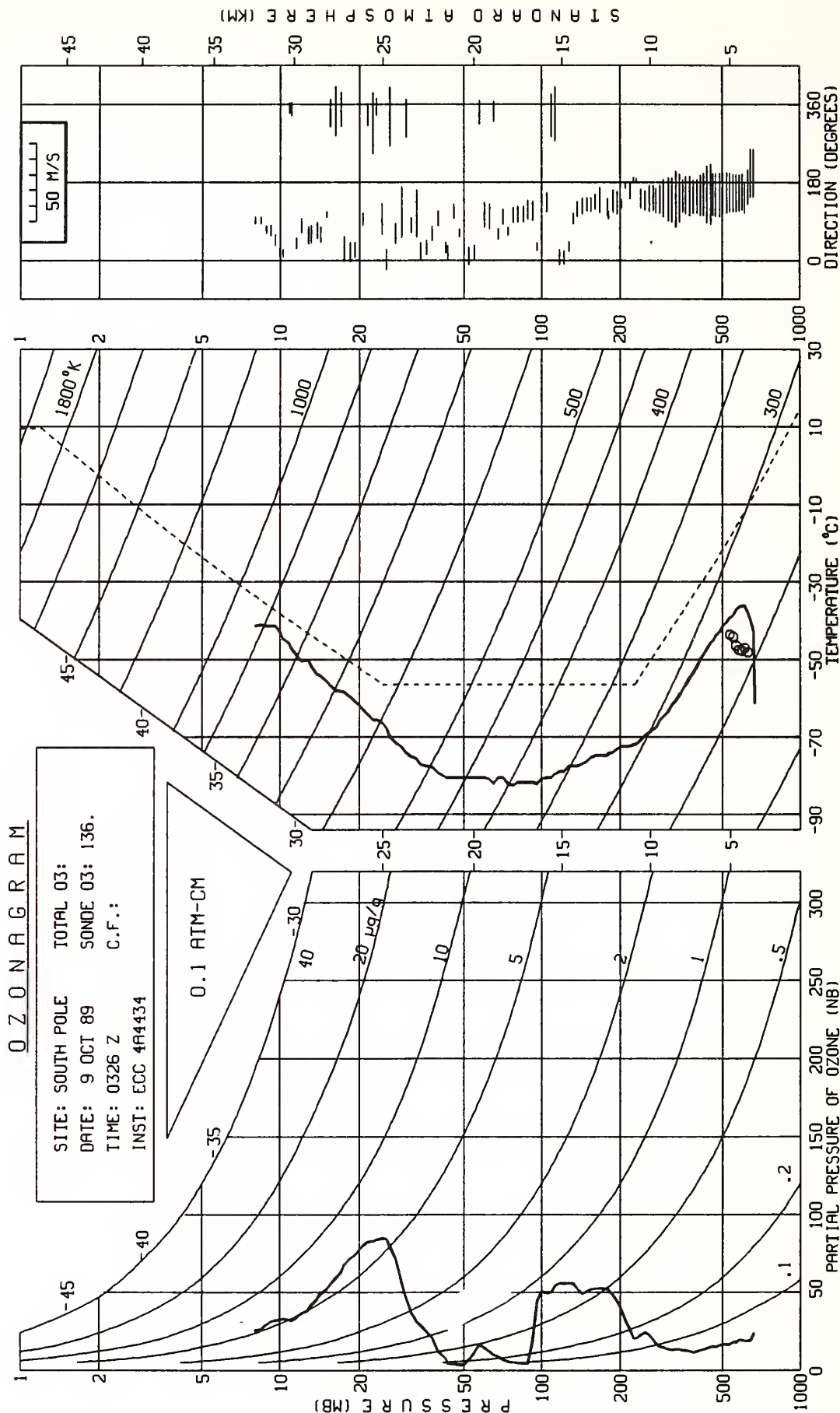
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
19.4	14.6	32.0	26.8	21.4	73.0	46.8	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110106108903			99		ECC TOTAL O3 FROM SONDE DATA 142
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110206108903	686	16-55		500	18-40200 8 300 11-65191 9 200 15-75158 2
1110306108903	150	56-78 44	7	100	27-81 55 3 70 10-83 52 5 50 22-80 32 10
1110406108903	30	63-74 74	1020.0	74-64 89	1010.0 37-44100 6 670 19-39225 43
1110506108903	652	20-33225	43	583	21-34200 15 270 18-69196 6 187 23-78184 2
1110606108903	173	22-78109	2	166	40-78 86 2 111 55-80 40 5 94 16-81 68 5
1110706108903	83	25-82 76	2	76	8-83114 2 44 10-81 57 4 40 15-81 79 6
1110806108903	33	41-75 80	1026.9	81-72 50	1224.4 83-70 88 1017.4 66-62 74 9
1110906108903	12.0	55-49 89	410.8	46-48 72	3 9.2 26-43109 8 7.4 24-40 71 4



STATION: SOUTH POLE LAUNCH DATE: 9 OCT 89 326 Z ECC SONDE: 4A4434
 SURFACE CONDITIONS: PRESSURE 666.3 MB, TEMPERATURE -61.6 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 22.0 C AT 70.0 ORD;
 O3 ORD ZERO 32.5, BKGND 33.0, CAL 69.7; O3 BKGND 0.071 MICROAMP; FLOW RATE 25.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 136.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	666.3	2835.	23.2	.035	63.3	.0000	-61.6			237.6		
1	661.0	2887.	23.5	.036	59.1	.0001	-43.1			258.9	30.3	201.
2	644.0	3063.	19.3	.030	47.7	.0006	-40.2			264.1	30.3	201.
3	628.0	3236.	18.9	.030	46.4	.0010	-38.0	-48.4	33.3	268.5	22.1	169.
4	611.0	3425.	19.0	.031	46.3	.0014	-36.4	-47.3	32.2	272.5	18.9	143.
5	597.0	3586.	19.3	.032	47.0	.0017	-36.4	-48.0	29.4	274.3	23.2	158.
6	580.0	3786.	19.7	.034	48.1	.0022	-36.6	-47.8	30.7	276.4	23.0	156.
7	565.0	3968.	18.2	.032	44.7	.0026	-37.5	-46.7	38.1	277.4	23.4	155.
8	550.0	4153.	18.3	.033	45.0	.0030	-38.9	-44.4	56.6	277.9	24.2	155.
9	534.0	4355.	16.7	.031	41.3	.0034	-39.4	-43.8	64.1	279.6	25.1	157.
10	520.0	4537.	16.7	.032	41.4	.0037	-40.5			280.4	25.8	156.
11	502.0	4776.	16.7	.033	41.7	.0042	-41.7			281.8	26.3	154.
12	489.0	4953.	16.3	.033	40.9	.0045	-43.0			282.3	28.1	151.
13	471.0	5206.	15.1	.032	38.1	.0050	-44.1			284.0	27.7	151.
14	460.0	5364.	15.2	.033	38.5	.0053	-45.4			284.3	27.0	152.
15	450.0	5510.	15.1	.034	38.5	.0055	-45.9			285.6	38.2	152.
16	436.0	5720.	14.4	.033	36.8	.0059	-47.5			286.1	36.7	152.
17	423.0	5919.	13.6	.032	35.1	.0062	-48.8			286.9	27.0	152.
18	410.0	6124.	12.9	.031	33.3	.0065	-50.3			287.5	25.8	150.
19	398.0	6317.	12.1	.030	31.6	.0068	-52.0			287.8	22.0	148.
20	386.0	6515.	11.7	.030	30.8	.0071	-53.4			288.5	21.4	147.
21	373.0	6734.	12.1	.032	32.0	.0074	-55.0			289.2	25.5	148.
22	360.0	6960.	12.8	.036	34.2	.0078	-56.7			289.9	24.3	150.
23	350.0	7138.	12.8	.037	34.3	.0081	-58.0			290.4	21.2	148.
24	339.0	7339.	13.5	.040	36.4	.0084	-59.4			291.1	31.0	144.
25	329.0	7526.	13.5	.041	36.7	.0087	-60.9			291.7	35.7	141.
26	318.0	7737.	13.1	.041	35.8	.0091	-62.0			293.0	28.1	139.
27	308.0	7933.	13.5	.044	37.3	.0094	-63.5			293.6	27.8	141.
28	295.0	8197.	14.7	.050	40.9	.0098	-65.0			295.0	24.0	143.
29	286.0	8386.	15.1	.053	42.1	.0102	-65.8			296.4	18.3	141.
30	276.0	8601.	17.0	.062	47.8	.0106	-67.9			296.5	15.8	138.
31	270.0	8733.	19.6	.073	55.2	.0109	-68.1			298.0	16.2	143.
32	260.0	8959.	22.6	.087	63.9	.0115	-69.0			300.0	16.8	143.
33	250.0	9193.	24.4	.098	69.3	.0122	-69.9			302.0	12.3	138.
34	241.0	9411.	22.9	.095	65.4	.0129	-71.1			303.5	11.6	141.
35	232.0	9635.	20.7	.089	59.4	.0136	-72.0			305.4	2.3	185.
36	225.0	9816.	20.7	.092	59.4	.0141	-72.2			307.7	3.5	185.
37	219.0	9975.	26.2	.120	75.4	.0145	-72.5			309.7	9.6	159.
38	210.0	10221.	32.0	.152	92.3	.0154	-72.7			313.1	3.3	172.
39	203.0	10420.	38.4	.189	110.7	.0163	-72.7			316.1	5.8	130.
40	195.5	10641.	43.9	.225	126.9	.0175	-73.2			318.7	14.8	133.
41	188.0	10870.	48.2	.256	139.9	.0189	-74.2			320.7	14.6	136.
42	180.9	11094.	51.6	.285	150.0	.0203	-74.5			323.8	4.8	104.
43	179.0	11155.	52.4	.293	152.7	.0207	-75.0			324.0	10.6	123.
44	167.6	11537.	52.6	.314	153.2	.0235	-75.0			330.1	16.4	139.
45	161.1	11767.	52.5	.326	152.9	.0251	-75.0			333.9	10.0	135.
46	155.0	11991.	52.1	.336	152.2	.0267	-75.5			336.7	8.7	128.
47	149.8	12188.	50.7	.338	149.0	.0280	-76.6			338.1	8.7	128.
48	144.0	12415.	49.4	.343	145.5	.0296	-77.1			341.0	10.2	125.
49	138.2	12650.	52.3	.378	154.6	.0312	-77.7			344.1	10.2	119.

STATION: SOUTH POLE				LAUNCH DATE: 9 OCT 89 326 Z				ECC SONDE: 4A4434				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	133.0	12870.	55.8	.420	164.9	.0328	-77.7			347.9	6.9	96.
51	127.9	13094.	56.1	.439	165.6	.0345	-77.7			351.8	6.4	31.
52	122.5	13340.	55.8	.456	165.9	.0364	-79.1			353.5	8.7	6.
53	117.8	13562.	56.1	.476	166.9	.0381	-79.1			357.5	9.6	7.
54	113.2	13788.	54.7	.483	163.4	.0399	-79.7			360.4	35.5	339.
55	109.0	14002.	50.2	.461	150.5	.0414	-80.7			362.6	27.4	335.
56	104.7	14229.	49.9	.477	149.7	.0430	-80.7			366.8	12.3	134.
57	100.0	14487.	50.5	.505	151.8	.0448	-81.0			371.0	3.3	95.
58	96.1	14711.	45.0	.468	136.2	.0463	-82.3			372.8	5.1	31.
59	92.1	14948.	17.4	.189	52.6	.0476	-81.9			378.0	12.5	114.
60	88.4	15178.	4.5	.051	13.4	.0481	-81.9			382.4	11.9	116.
61	84.8	15411.	4.5	.053	13.5	.0482	-81.9			387.0	10.4	106.
62	80.9	15675.	4.9	.061	14.7	.0484	-81.9			392.2	10.5	106.
63	77.5	15915.	5.2	.067	15.9	.0485	-82.6			395.7	10.1	104.
64	74.1	16165.	5.6	.076	17.0	.0487	-82.3			401.5	5.3	67.
65	71.0	16405.	6.7	.094	20.1	.0489	-80.7			409.9	9.8	101.
66	68.0	16649.	8.9	.131	26.6	.0492	-80.7			414.9	6.9	60.
67	65.1	16893.	9.9	.152	30.1	.0495	-82.3			416.6	13.3	344.
68	62.6	17113.	12.1	.193	36.5	.0498	-81.0			424.2	16.0	101.
69	60.0	17352.	14.4	.240	43.1	.0502	-80.7			430.0	16.0	105.
70	57.4	17602.	16.5	.287	49.4	.0507	-80.7			435.5	15.5	342.
71	54.9	17853.	11.2	.204	33.5	.0513	-80.7			441.1	8.7	18.
72	52.3	18126.	6.7	.128	20.2	.0517	-80.7			447.3	11.3	9.
73	50.1	18369.	3.7	.074	11.2	.0519	-80.7			452.8	22.3	346.
74	48.0	18610.	3.7	.077	11.2	.0520	-80.7			458.4	5.2	63.
75	45.8	18875.	4.1	.090	12.4	.0521	-80.7			464.5	9.3	113.
76	43.4	19178.	4.5	.104	13.4	.0523	-80.7			471.7	8.2	18.
77	42.6	19283.	7.8	.183	23.4	.0524	-80.7			474.3	6.8	29.
78	39.8	19667.	12.2	.307	36.3	.0528	-79.4			486.6	9.8	97.
79	37.9	19946.	20.8	.549	61.5	.0534	-78.0			497.2	8.8	62.
80	36.0	20240.	24.7	.686	72.8	.0543	-77.7			505.3	9.4	29.
81	34.2	20534.	28.6	.836	84.5	.0553	-77.4			513.5	10.6	21.
82	32.9	20757.	31.4	.954	91.8	.0562	-75.8			523.6	30.0	107.
83	31.5	21009.	36.9	1.171	107.6	.0573	-75.2			531.5	9.9	81.
84	30.1	21273.	46.9	1.558	136.0	.0587	-74.2			541.3	24.8	328.
85	28.9	21511.	57.5	1.990	165.5	.0602	-72.7			551.7	32.8	111.
86	27.5	21803.	71.4	2.596	204.7	.0626	-71.8			562.3	12.9	62.
87	26.2	22090.	79.2	3.023	225.2	.0654	-70.1			574.7	37.8	332.
88	25.4	22276.	84.6	3.331	237.9	.0674	-67.9			586.1	13.4	1.
89	24.3	22543.	84.7	3.486	236.4	.0703	-66.3			598.4	19.6	95.
90	23.2	22824.	83.9	3.616	233.6	.0734	-65.8			607.6	10.9	355.
91	22.5	23010.	83.1	3.693	231.4	.0754	-65.8			613.0	39.1	317.
92	21.5	23287.	82.7	3.847	228.7	.0784	-64.3			625.8	14.2	336.
93	20.6	23549.	80.1	3.888	220.1	.0811	-63.1			637.0	8.1	95.
94	19.9	23763.	77.4	3.889	211.7	.0833	-62.0			646.8	12.7	80.
95	19.1	24017.	73.8	3.864	200.9	.0857	-61.0			657.2	9.8	23.
96	18.4	24250.	71.9	3.908	194.4	.0878	-59.8			668.2	12.5	19.
97	17.5	24564.	67.7	3.869	182.3	.0906	-58.7			681.2	16.1	26.
98	17.0	24746.	62.9	3.700	169.1	.0921	-58.4			688.0	21.6	349.
99	16.2	25049.	58.7	3.623	157.6	.0944	-58.2			698.1	31.9	345.
100	15.5	25328.	55.1	3.555	147.1	.0964	-57.0			710.9	17.8	340.
101	15.0	25537.	51.7	3.447	137.3	.0978	-55.7			722.0	3.8	106.
102	14.2	25887.	48.8	3.437	128.9	.1000	-54.4			737.8	9.9	59.
103	13.8	26070.	45.3	3.283	119.4	.1011	-54.0			745.0	10.3	69.
104	13.1	26406.	41.5	3.168	108.3	.1029	-51.8			763.8	11.2	60.

STATION: SOUTH POLE			LAUNCH DATE: 9 OCT 89 326 Z				ECC SONDE: 4A4434					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	12.8	26557.	38.5	3.008	99.6	.1036	-50.3			774.2	11.0	57.
106	12.0	26978.	36.3	3.025	94.1	.1056	-50.6			787.5	9.5	80.
107	11.5	27256.	33.2	2.887	85.4	.1068	-48.9			803.1	6.5	39.
108	11.0	27549.	31.8	2.891	81.4	.1079	-47.3			819.3	8.7	350.
109	10.8	27671.	32.3	2.991	82.0	.1084	-46.0			828.4	6.6	352.
110	10.2	28052.	33.0	3.235	83.4	.1098	-44.8			846.3	4.8	16.
111	9.9	28232.	32.3	3.253	80.9	.1105	-42.9			860.2	5.5	18.
112	9.5	28503.	32.2	3.375	80.2	.1115	-41.6			874.8	6.9	47.
113	9.2	28771.	31.3	3.413	78.0	.1125	-41.6			884.8	6.8	69.
114	8.8	29058.	29.2	3.322	72.9	.1135	-41.6			895.5	4.7	71.
115	8.4	29366.	26.2	3.119	65.3	.1145	-41.3			908.3	4.4	92.
116	8.0	29698.	25.7	3.213	64.1	.1155	-41.6			919.9	4.4	92.

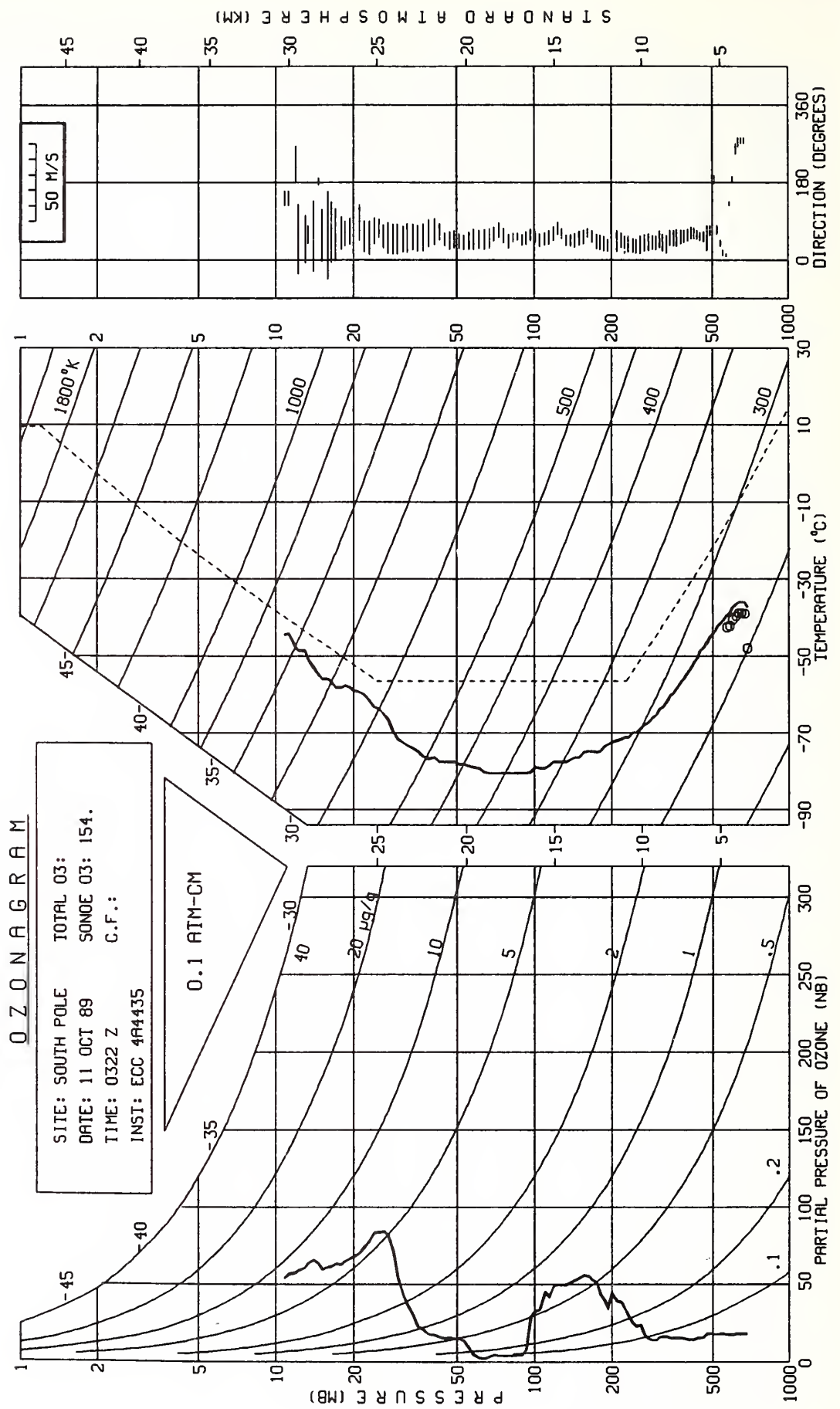
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
18.6	14.7	42.6	26.1	14.2	70.5	38.0	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX XP T CORR	COMMENTS
1110109108903	99	ECC TOTAL O3 FROM SONDE DATA 136
ISNNYYMMJJGG	PPPP P3TTTDDDDFFPPPP	P3TTTDDDDFFPPPP P3TTTDDDDFFPPPP P3TTTDDDDFFPPPP P3TTTDDDDFF
1110209108903	666 23-62	500 17-42154 27 300 14-64142 25 200 41-73131 9
1110309108903	150 51-77128	9 100 51-81 95 3 70 7-81 88 9 50 4-81333 22
1110409108903	30 48-74310	2520.0 78-62 82 1210.0 32-43 17 5 661 24-43201 30
1110509108903	628 19-38169	22 580 20-37156 23 232 21-72185 2 179 52-75123 11
1110609108903	96 45-82 31	5 92 17-82114 13 88 5-82116 12 78 5-83104 10
1110709108903	65 10-82344	13 57 17-81342 16 43 8-81 29 727.5 71-72 62 13
1110809108903	24.3 85-66 95	2013.8 45-54 69 1012.8 39-50 57 1112.0 36-51 80 10
1110909108903	8.0 26-42 92	4



STATION: SOUTH POLE LAUNCH DATE: 11 OCT 89 322 Z ECC SONDE: 4A4435
 SURFACE CONDITIONS: PRESSURE 686.3 MB, TEMPERATURE -37.5 C, HUMIDITY 32.2 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 21.0 C AT 72.0 ORD;
 O3 ORD ZERO 33.8, BKGND 34.0, CAL 72.0; O3 BKGND 0.028 MICROAMP; FLOW RATE 28.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 154.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	686.3	2835.	18.2	.027	44.6	.0000	-37.5	-48.2	32.2	262.4		
1	669.0	3012.	18.2	.027	44.4	.0004	-36.2	-39.2	74.8	265.8	3.8	278.
2	650.0	3212.	18.2	.028	44.3	.0008	-36.2	-39.1	75.8	268.0	3.8	278.
3	634.0	3385.	18.2	.029	44.2	.0011	-36.2	-39.1	76.0	270.0	6.1	274.
4	619.0	3551.	18.1	.029	44.3	.0015	-36.8	-39.9	74.8	271.0	6.4	258.
5	601.0	3755.	17.7	.029	43.3	.0019	-37.5	-40.8	72.5	272.6	3.6	187.
6	585.0	3940.	17.7	.030	43.7	.0023	-39.1	-42.4	72.6	272.8	2.4	131.
7	570.0	4118.	17.7	.031	43.8	.0026	-39.7	-42.8	73.9	274.2	1.9	11.
8	552.0	4337.	18.2	.033	45.2	.0031	-40.8			275.4	3.7	16.
9	539.0	4499.	18.2	.034	45.4	.0034	-41.6			276.3	3.8	39.
10	522.0	4716.	17.8	.034	44.7	.0038	-42.6			277.6	5.4	69.
11	508.0	4899.	17.8	.035	44.9	.0042	-44.1			277.9	5.5	186.
12	490.0	5140.	18.3	.037	46.2	.0047	-45.1			279.6	6.4	68.
13	476.0	5333.	18.2	.038	46.5	.0051	-46.6			280.1	16.0	50.
14	461.0	5545.	15.9	.034	40.8	.0056	-48.0			280.9	6.4	54.
15	444.8	5781.	15.4	.035	39.8	.0060	-48.9			282.6	5.6	54.
16	435.0	5926.	15.5	.036	40.1	.0063	-50.6			282.3	5.7	58.
17	421.0	6139.	14.5	.034	37.9	.0067	-52.0			283.2	7.1	62.
18	410.0	6310.	14.5	.035	38.0	.0070	-53.4			283.5	7.0	62.
19	399.0	6485.	14.5	.036	38.2	.0073	-54.5			284.3	7.6	57.
20	386.0	6696.	14.9	.039	39.6	.0077	-55.8			285.3	8.0	54.
21	374.0	6897.	15.4	.041	41.1	.0080	-57.0			286.3	8.8	54.
22	361.0	7120.	15.4	.043	41.3	.0085	-58.4			287.4	10.5	51.
23	350.0	7314.	15.4	.044	41.6	.0088	-59.8			288.0	10.0	50.
24	338.0	7532.	15.4	.046	41.8	.0093	-60.5			289.9	10.1	51.
25	328.0	7718.	16.3	.050	44.5	.0096	-62.1			290.2	11.7	36.
26	317.0	7928.	16.3	.051	44.8	.0101	-63.5			291.2	11.0	40.
27	308.0	8105.	15.8	.051	43.7	.0104	-63.9			293.0	10.7	48.
28	299.0	8286.	14.0	.047	38.8	.0108	-65.4			293.3	9.4	39.
29	289.0	8493.	13.9	.048	38.9	.0112	-66.1			295.3	9.4	40.
30	279.0	8705.	14.9	.053	41.7	.0115	-67.5			296.2	10.8	41.
31	270.0	8903.	17.2	.064	48.4	.0119	-68.1			298.0	10.9	39.
32	259.0	9152.	24.0	.093	68.0	.0125	-69.2			300.0	11.5	35.
33	250.0	9362.	23.0	.092	65.5	.0132	-70.1			301.7	9.2	32.
34	243.0	9531.	24.8	.102	70.6	.0137	-70.1			304.2	9.1	33.
35	233.0	9780.	29.7	.127	84.9	.0146	-71.3			306.1	10.2	36.
36	226.0	9961.	34.1	.151	97.5	.0153	-71.3			308.8	8.0	40.
37	219.0	10147.	38.5	.176	110.3	.0162	-71.8			310.8	9.4	45.
38	210.0	10394.	39.3	.187	113.0	.0174	-72.2			313.8	13.4	43.
39	200.0	10681.	44.4	.222	127.8	.0190	-72.7			317.5	11.8	40.
40	193.0	10890.	34.8	.180	100.5	.0201	-73.2			319.9	7.4	33.
41	187.8	11049.	39.5	.210	114.2	.0209	-73.7			321.6	9.5	38.
42	181.1	11261.	43.7	.241	127.4	.0220	-75.0			322.9	9.3	40.
43	174.8	11466.	51.3	.293	149.6	.0233	-75.2			325.8	9.7	42.
44	168.1	11693.	52.9	.315	154.2	.0249	-75.0			329.8	7.7	54.
45	162.0	11908.	55.6	.343	161.9	.0265	-75.0			333.4	5.4	62.
46	156.0	12126.	55.9	.358	163.2	.0281	-75.2			336.5	8.8	53.
47	150.0	12353.	54.3	.362	159.5	.0298	-76.6			338.0	9.0	50.
48	144.1	12584.	52.7	.366	154.7	.0315	-76.6			341.9	8.7	45.
49	138.9	12795.	51.4	.370	151.4	.0330	-77.1			344.5	7.3	45.

STATION: SOUTH POLE			LAUNCH DATE: 11 OCT 89			322 Z	ECC SONDE: 4A4435					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	133.6	13018.	50.0	.374	147.7	.0345	-77.7			347.4	6.6	45.
51	128.1	13259.	49.6	.387	146.4	.0362	-77.7			351.6	6.4	61.
52	123.6	13464.	49.8	.403	147.2	.0376	-77.7			355.2	7.8	73.
53	119.0	13681.	49.3	.414	145.6	.0391	-77.7			359.1	8.8	61.
54	114.5	13901.	42.1	.368	124.9	.0405	-78.6			361.5	8.7	52.
55	110.0	14129.	44.9	.408	133.8	.0419	-79.4			364.0	8.0	49.
56	105.2	14382.	33.9	.322	101.0	.0433	-79.4			368.6	8.2	46.
57	100.8	14625.	32.8	.325	97.6	.0444	-79.1			373.7	7.6	53.
58	97.0	14843.	29.0	.299	87.0	.0454	-80.4			375.5	7.2	58.
59	93.3	15062.	8.0	.086	23.9	.0461	-80.7			379.1	8.2	50.
60	89.9	15271.	4.4	.049	13.3	.0463	-80.7			383.1	6.8	46.
61	86.5	15489.	4.4	.051	13.3	.0465	-80.7			387.4	4.2	53.
62	83.1	15715.	4.0	.048	11.9	.0466	-80.7			391.8	5.7	52.
63	79.9	15936.	4.0	.050	11.9	.0467	-80.7			396.3	9.2	43.
64	76.2	16204.	4.0	.052	11.9	.0469	-80.7			401.7	9.6	56.
65	73.1	16438.	4.0	.055	11.9	.0470	-80.7			406.5	9.8	69.
66	70.0	16682.	4.4	.063	13.2	.0471	-80.7			411.5	9.5	60.
67	67.0	16929.	3.5	.052	10.6	.0473	-80.7			416.7	12.5	50.
68	64.1	17179.	2.2	.034	6.6	.0474	-80.4			422.7	12.6	47.
69	61.3	17431.	2.6	.042	7.9	.0475	-79.4			430.1	11.9	47.
70	58.3	17716.	4.4	.075	13.1	.0476	-79.1			437.0	13.1	47.
71	56.0	17945.	8.8	.157	26.1	.0478	-78.9			442.7	11.1	44.
72	53.5	18206.	13.1	.245	38.8	.0481	-78.3			449.9	9.9	40.
73	51.2	18456.	15.2	.297	45.1	.0486	-78.3			455.6	9.7	43.
74	49.0	18707.	14.8	.302	43.7	.0491	-77.7			462.7	11.2	47.
75	47.0	18946.	15.7	.334	46.2	.0496	-77.7			468.2	11.4	44.
76	44.9	19208.	15.2	.339	45.0	.0501	-77.7			474.4	8.5	47.
77	42.8	19482.	16.1	.376	47.4	.0507	-77.7			480.9	10.6	65.
78	41.0	19729.	17.3	.422	50.9	.0513	-76.6			489.6	17.1	66.
79	38.9	20031.	17.8	.458	52.2	.0520	-76.9			496.4	17.7	61.
80	37.0	20319.	20.6	.557	60.5	.0527	-76.3			504.9	17.3	52.
81	35.2	20608.	22.8	.648	66.4	.0535	-75.0			515.6	16.4	50.
82	33.8	20844.	29.8	.882	86.5	.0543	-74.2			523.7	16.9	53.
83	32.1	21145.	36.7	1.143	106.2	.0556	-73.5			533.5	19.0	50.
84	30.9	21369.	43.1	1.395	124.2	.0567	-72.7			541.3	16.5	48.
85	29.5	21641.	54.5	1.847	156.3	.0584	-71.8			551.1	19.6	48.
86	28.3	21888.	71.2	2.516	202.0	.0603	-69.7			563.5	19.5	48.
87	27.1	22148.	81.5	3.007	227.9	.0628	-66.7			578.9	19.7	50.
88	26.1	22376.	84.3	3.230	234.3	.0652	-65.4			588.7	15.1	54.
89	25.0	22639.	84.0	3.360	231.7	.0681	-63.9			600.5	11.9	73.
90	24.0	22889.	83.5	3.479	230.0	.0708	-63.5			608.6	16.6	66.
91	23.0	23152.	78.5	3.413	214.5	.0735	-61.8			621.1	21.8	51.
92	22.0	23428.	74.2	3.373	201.3	.0762	-60.3			633.4	20.0	54.
93	21.0	23718.	70.1	3.338	189.6	.0789	-59.6			644.0	22.8	86.
94	20.0	24024.	68.2	3.410	184.1	.0816	-59.2			654.1	24.2	96.
95	19.3	24248.	66.8	3.461	179.4	.0835	-58.4			663.5	17.0	66.
96	18.5	24514.	65.0	3.514	174.2	.0857	-57.9			673.2	16.3	61.
97	17.9	24722.	63.1	3.525	169.7	.0873	-58.4			678.0	21.0	62.
98	17.0	25046.	63.3	3.724	170.0	.0899	-58.4			688.0	33.8	58.
99	16.4	25273.	61.8	3.768	165.0	.0916	-57.0			699.5	39.1	64.
100	15.9	25470.	61.4	3.862	163.4	.0931	-56.2			708.5	57.0	57.
101	15.1	25798.	59.9	3.967	159.3	.0956	-56.2			719.0	33.9	56.
102	14.6	26012.	63.6	4.356	168.3	.0972	-55.0			729.8	4.3	182.
103	14.0	26281.	65.9	4.707	173.1	.0993	-53.2			744.6	45.6	55.
104	13.3	26614.	63.8	4.797	165.7	.1019	-50.9			763.7	11.6	58.

STATION: SOUTH POLE			LAUNCH DATE: 11 OCT 89 322 Z				ECC SONDE: 4A4435					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	13.0	26763.	61.0	4.692	157.1	.1030	-48.9			775.5	31.3	48.
106	12.2	27180.	59.2	4.852	152.5	.1060	-48.8			790.2	45.2	48.
107	11.9	27344.	57.7	4.849	148.1	.1072	-48.0			798.5	23.2	223.
108	11.2	27747.	56.7	5.063	143.2	.1099	-44.4			825.5	9.6	143.
109	10.8	27990.	54.1	5.009	136.7	.1115	-44.7			833.1	9.6	143.

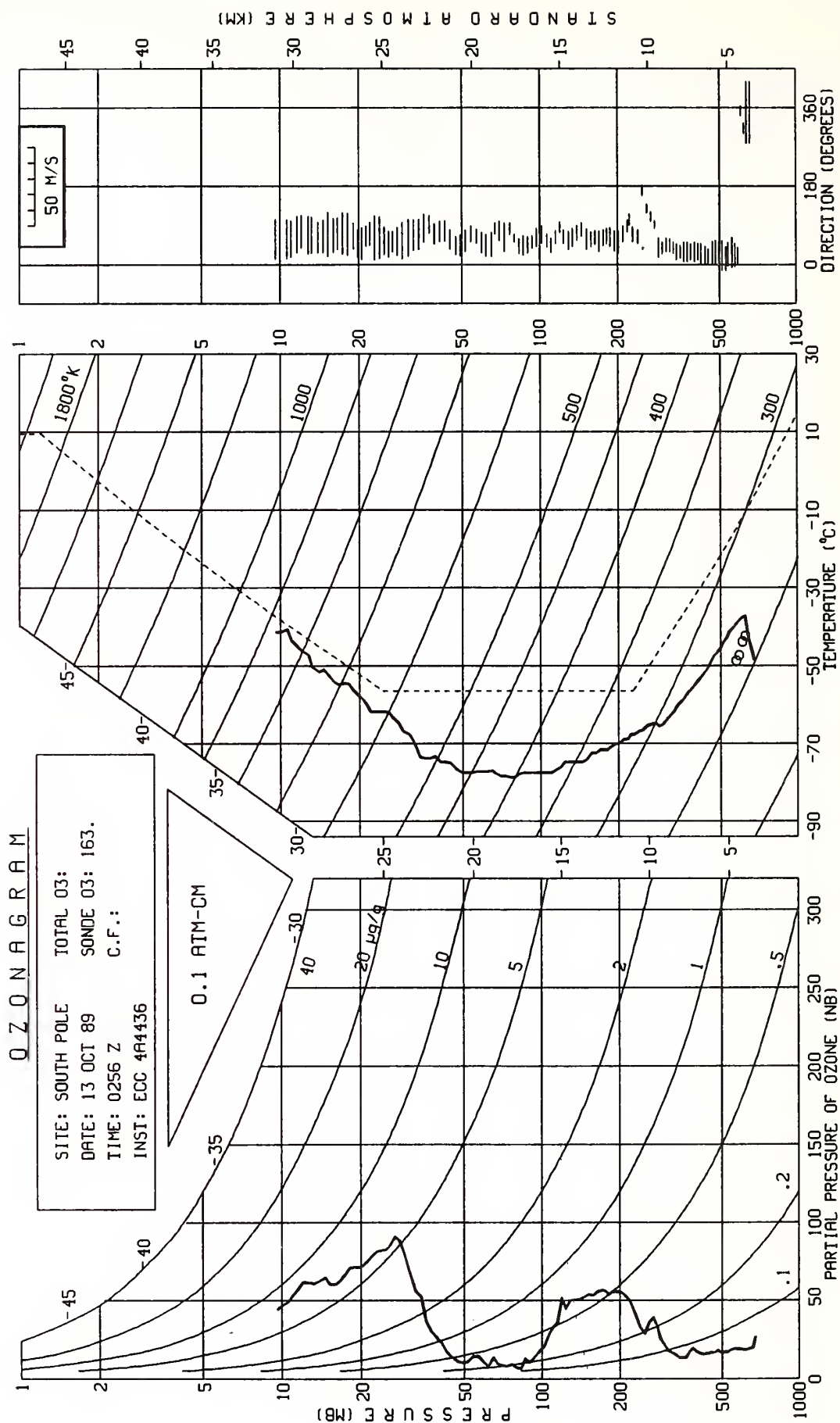
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
17.8	16.0	43.8	18.8	16.4	68.8	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110111108903	99				ECC TOTAL O3 FROM SONDE DATA 154
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110211108903	686	18-38		500	18-45134 6 300 14-65 40 10 200 44-73 40 12
1110311108903	150	54-77	50	9	100 32-79 54 8 70 4-81 60 10 50 15-78 45 11
1110411108903	30	50-72	48	1820.0	68-59 96 24 634 18-36274 6 250 23-70 32 9
1110511108903	193	35-73	33	7	175 51-75 42 10 119 49-78 61 9 97 29-80 58 7
1110611108903	93	8-81	50	8	90 4-81 46 7 39 18-77 61 18 35 23-75 50 16
1110711108903	27.1	82-67	50	2025.0	84-64 73 1215.1 60-56 56 3413.0 61-49 48 31
1110811108903	10.8	54-45143	10		



STATION: SOUTH POLE LAUNCH DATE: 13 OCT 89 256 Z ECC SONDE: 4A4436
 SURFACE CONDITIONS: PRESSURE 676.3 MB, TEMPERATURE -48.8 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 25.5 C AT 71.0 ORD;
 O3 ORD ZERO 34.3, BKGND 34.6, CAL 72.0; O3 BKGND 0.042 MICROAMP; FLOW RATE 26.7 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 163.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	676.3	2835.	26.9	.040	69.2	.0000	-48.8			250.9		
1	660.0	2996.	19.7	.030	49.9	.0005	-45.9			256.0	39.6	350.
2	640.0	3203.	19.2	.030	48.1	.0010	-42.9			261.6	39.6	350.
3	625.0	3364.	18.7	.030	45.9	.0013	-37.5	-42.6	60.1	269.5	7.0	313.
4	609.0	3543.	18.7	.031	45.9	.0017	-37.8	-44.1	52.5	271.2	6.5	354.
5	590.0	3761.	19.1	.032	47.2	.0021	-38.7	-47.6	39.4	272.6	11.6	19.
6	575.0	3938.	19.1	.033	47.1	.0025	-39.5	-49.0	36.4	273.6	14.6	21.
7	560.0	4118.	19.4	.035	48.2	.0029	-40.5			274.6	19.0	27.
8	540.5	4359.	18.5	.034	46.2	.0035	-41.6			276.0	15.0	23.
9	530.0	4492.	17.2	.032	43.2	.0037	-43.0			275.9	15.1	13.
10	512.0	4724.	17.2	.034	43.5	.0042	-44.4			277.0	18.9	20.
11	498.0	4909.	16.4	.033	41.5	.0046	-45.9			277.4	15.9	22.
12	482.0	5126.	18.1	.038	46.2	.0050	-47.2			278.4	15.4	27.
13	469.0	5307.	16.8	.036	43.1	.0054	-48.0			279.5	14.1	27.
14	452.0	5549.	16.7	.037	43.1	.0059	-50.0			280.0	9.2	19.
15	440.0	5725.	16.2	.037	42.3	.0062	-51.4			280.4	11.6	21.
16	423.0	5980.	15.8	.037	41.3	.0067	-52.8			281.8	12.3	25.
17	410.0	6181.	16.2	.040	42.7	.0071	-54.0			282.7	10.9	29.
18	399.0	6355.	17.2	.043	45.4	.0075	-55.0			283.6	12.4	29.
19	384.0	6599.	19.4	.051	51.5	.0080	-56.3			285.0	10.3	29.
20	373.0	6783.	17.6	.047	46.9	.0084	-57.0			286.5	12.6	29.
21	362.0	6972.	13.6	.038	36.6	.0088	-58.4			287.1	12.9	29.
22	351.0	7166.	13.6	.039	36.7	.0091	-59.4			288.3	8.1	29.
23	340.0	7365.	13.5	.040	36.7	.0094	-60.5			289.4	10.1	29.
24	330.0	7550.	15.2	.046	41.5	.0098	-61.8			290.2	7.1	38.
25	320.0	7740.	16.4	.051	45.0	.0101	-62.9			291.2	8.3	44.
26	309.0	7955.	17.7	.057	48.7	.0106	-63.9			292.7	8.5	44.
27	299.0	8156.	21.5	.072	59.6	.0111	-65.2			293.6	7.8	38.
28	289.0	8363.	25.4	.088	70.7	.0117	-65.8			295.6	12.4	38.
29	280.0	8555.	33.7	.120	93.6	.0124	-65.0			299.4	5.0	91.
30	270.0	8777.	39.1	.145	108.6	.0134	-65.2			302.2	6.2	110.
31	260.0	9006.	35.8	.138	99.5	.0145	-65.6			304.9	5.5	129.
32	250.0	9244.	29.1	.116	81.3	.0155	-66.7			306.8	6.6	170.
33	240.0	9491.	33.1	.138	92.6	.0165	-67.1			309.8	8.6	63.
34	230.0	9747.	41.9	.182	117.8	.0177	-67.9			312.3	9.3	69.
35	223.0	9933.	46.8	.210	131.6	.0187	-67.9			315.1	7.2	103.
36	219.0	10042.	50.0	.228	141.5	.0194	-69.0			315.0	7.7	88.
37	210.0	10292.	53.0	.252	150.1	.0210	-69.2			318.5	10.1	69.
38	202.0	10524.	55.4	.274	157.5	.0227	-70.1			320.6	14.4	51.
39	195.0	10733.	55.8	.286	158.9	.0242	-70.4			323.5	12.6	54.
40	187.1	10979.	55.7	.298	159.2	.0260	-71.1			326.3	12.1	62.
41	181.5	11158.	53.9	.297	154.6	.0273	-71.8			328.0	10.1	65.
42	175.9	11343.	56.2	.319	161.0	.0286	-71.8			330.9	10.5	61.
43	170.0	11544.	56.6	.333	162.1	.0301	-71.8			334.1	13.2	53.
44	164.1	11752.	55.8	.340	160.8	.0317	-72.7			335.9	9.0	62.
45	158.0	11975.	53.3	.337	153.5	.0333	-72.7			339.6	9.5	57.
46	151.8	12209.	54.0	.356	156.6	.0350	-74.2			340.9	13.2	58.
47	145.2	12467.	52.3	.360	152.2	.0368	-75.0			343.9	8.8	80.
48	140.0	12679.	50.7	.362	147.6	.0383	-75.0			347.5	9.7	72.
49	134.6	12907.	50.4	.374	146.9	.0399	-75.0			351.5	11.9	62.

STATION: SOUTH POLE			LAUNCH DATE: 13 OCT 89 256 Z					ECC SONDE: 4A4436				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	129.5	13131.	50.3	.388	146.6	.0414	-75.0			355.4	11.8	56.
51	124.2	13374.	45.0	.362	131.0	.0430	-75.0			359.6	8.6	63.
52	119.9	13578.	51.3	.428	150.6	.0442	-76.3			360.8	6.9	85.
53	115.1	13813.	35.9	.312	105.7	.0458	-76.9			364.1	8.8	63.
54	110.7	14037.	32.8	.296	96.9	.0468	-77.7			366.6	9.3	44.
55	107.1	14226.	28.7	.268	84.9	.0476	-77.7			370.1	8.5	55.
56	101.9	14511.	20.3	.199	60.0	.0487	-77.7			375.4	11.1	68.
57	97.6	14758.	17.4	.178	51.3	.0493	-77.7			380.0	11.9	62.
58	93.6	14997.	13.7	.146	40.5	.0499	-77.7			384.6	8.3	51.
59	89.7	15241.	10.4	.116	30.8	.0503	-77.7			389.3	10.6	45.
60	86.2	15469.	12.8	.148	37.8	.0506	-77.7			393.7	12.5	44.
61	83.0	15685.	6.6	.080	19.6	.0510	-78.0			397.4	9.3	41.
62	79.9	15902.	7.0	.088	20.9	.0512	-78.9			400.0	4.7	60.
63	76.5	16150.	9.1	.119	27.1	.0514	-78.9			405.0	7.2	82.
64	73.1	16409.	7.9	.108	23.3	.0517	-78.6			410.9	18.3	62.
65	69.9	16664.	8.7	.124	25.7	.0520	-78.6			416.2	12.7	76.
66	67.1	16897.	9.5	.142	28.0	.0523	-78.0			422.3	7.6	82.
67	64.9	17088.	13.5	.208	39.7	.0526	-77.1			428.2	15.4	46.
68	62.0	17351.	7.8	.126	23.0	.0530	-77.4			433.2	13.9	43.
69	59.4	17596.	10.6	.178	31.3	.0533	-77.4			438.6	13.6	50.
70	56.9	17843.	14.2	.250	41.8	.0537	-77.4			444.0	9.1	65.
71	54.1	18132.	14.2	.262	41.8	.0542	-77.7			449.8	10.0	69.
72	51.6	18403.	10.6	.205	31.3	.0547	-77.7			455.9	14.0	54.
73	49.5	18640.	10.2	.206	30.1	.0551	-77.7			461.4	13.5	43.
74	47.3	18901.	10.9	.230	32.2	.0555	-76.9			469.4	11.6	43.
75	45.0	19189.	13.7	.304	40.0	.0559	-75.2			480.0	12.0	57.
76	43.0	19453.	16.5	.384	48.1	.0564	-75.0			487.0	13.4	77.
77	41.0	19729.	22.3	.544	65.0	.0571	-75.0			493.6	14.1	76.
78	39.0	20021.	26.6	.682	76.8	.0580	-73.5			504.6	13.1	70.
79	37.2	20297.	30.7	.825	88.9	.0590	-74.0			510.2	11.6	92.
80	35.5	20570.	36.6	1.031	106.0	.0602	-74.0			517.0	17.5	82.
81	34.0	20822.	52.7	1.550	152.5	.0616	-73.7			524.1	19.2	69.
82	32.4	21106.	55.9	1.725	158.9	.0636	-70.1			540.9	19.4	67.
83	31.0	21370.	65.6	2.116	184.6	.0656	-67.9			553.7	23.5	61.
84	29.4	21689.	79.1	2.690	221.7	.0684	-67.1			564.5	23.4	54.
85	28.1	21963.	88.4	3.146	245.1	.0713	-64.8			578.0	17.8	53.
86	27.0	22208.	90.8	3.363	250.2	.0741	-63.7			588.0	12.9	52.
87	26.0	22440.	86.0	3.308	235.5	.0768	-62.3			598.1	16.7	47.
88	25.0	22683.	82.6	3.304	225.7	.0794	-62.0			605.9	17.4	54.
89	24.0	22935.	82.2	3.425	224.6	.0820	-62.0			613.0	27.0	61.
90	23.0	23198.	81.5	3.543	222.9	.0847	-62.0			620.5	27.8	61.
91	22.0	23473.	78.7	3.577	215.2	.0876	-62.0			628.5	15.1	70.
92	21.2	23703.	75.4	3.557	204.3	.0898	-60.1			640.7	12.7	64.
93	20.5	23914.	72.9	3.556	196.2	.0918	-58.7			651.1	20.6	48.
94	19.8	24132.	71.4	3.606	191.5	.0938	-57.9			660.3	17.7	48.
95	19.0	24393.	71.3	3.753	190.0	.0961	-56.7			671.8	16.7	65.
96	18.1	24702.	71.0	3.923	187.7	.0988	-54.8			686.9	27.5	69.
97	17.3	24991.	66.2	3.827	175.2	.1013	-54.8			695.8	26.7	71.
98	16.6	25255.	62.5	3.765	165.5	.1034	-55.0			703.6	20.3	71.
99	16.0	25491.	60.3	3.769	159.3	.1051	-54.5			712.6	21.9	66.
100	15.2	25821.	60.4	3.974	158.1	.1076	-52.6			729.4	28.1	69.
101	14.6	26082.	64.9	4.445	168.9	.1095	-51.2			742.6	20.9	64.
102	14.0	26354.	62.9	4.493	164.2	.1117	-51.8			749.4	19.3	62.
103	13.2	26736.	60.6	4.591	157.2	.1145	-50.6			766.4	23.0	67.
104	12.8	26938.	61.3	4.789	157.0	.1160	-47.6			783.5	24.4	67.

STATION: SOUTH POLE			LAUNCH DATE: 13 OCT 89 256 Z					ECC SONDE: 4A4436				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	12.0	27366.	61.5	5.125	156.5	.1191	-46.3			802.8	20.7	75.
106	11.6	27592.	57.8	4.983	146.5	.1207	-45.3			814.2	23.4	69.
107	11.0	27948.	53.2	4.836	133.7	.1231	-43.7			832.3	23.2	58.
108	10.6	28198.	49.3	4.651	122.5	.1246	-40.9			851.4	24.6	58.
109	10.0	28594.	46.8	4.680	116.8	.1269	-41.6			863.1	25.5	58.
110	9.6	28871.	44.4	4.625	110.7	.1283	-41.6			873.2	25.5	58.

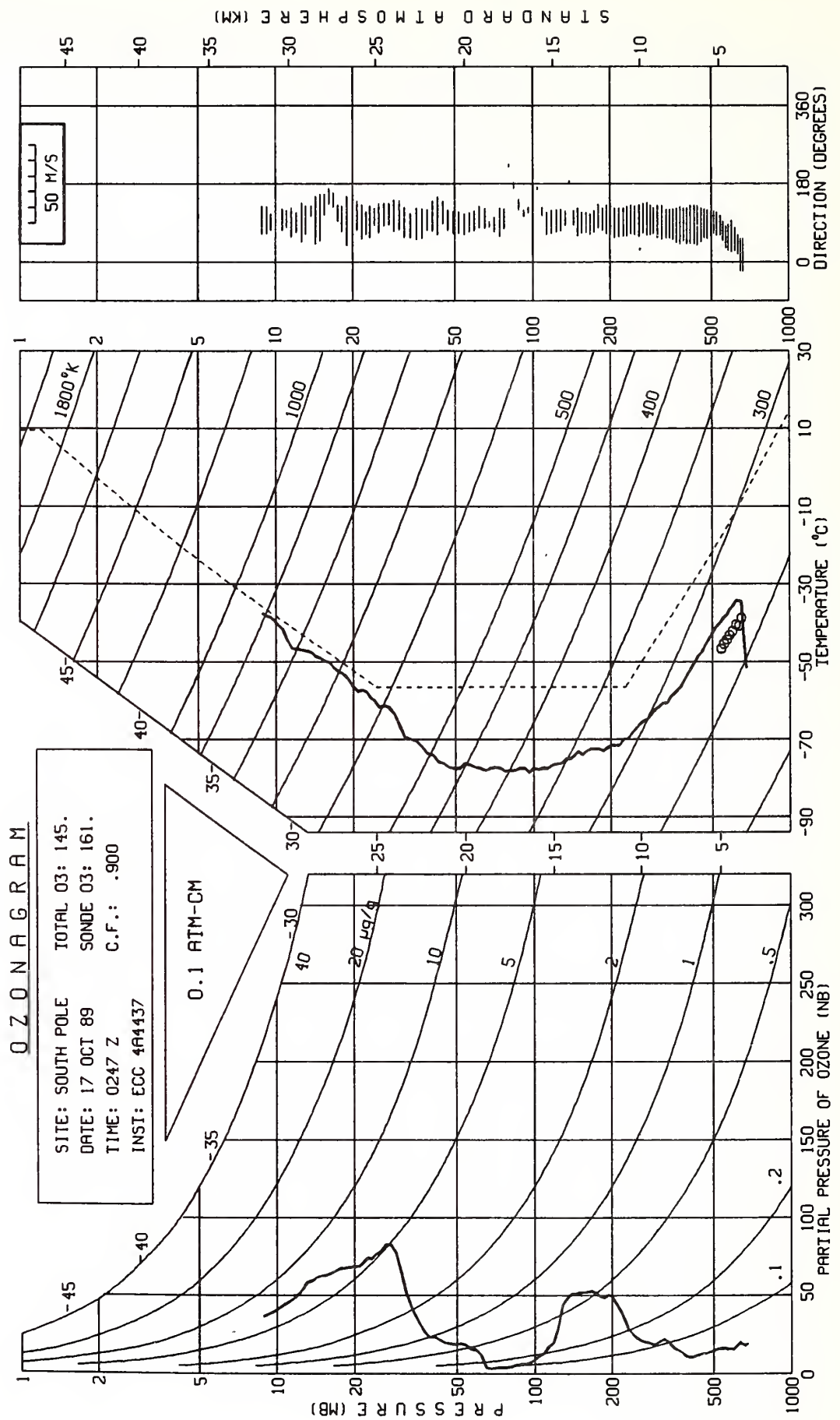
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
19.0	20.1	49.7	18.7	22.5	75.1	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110113108903	99				ECC TOTAL O3 FROM SONDE DATA 163
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110213108903	676	27-49		500	17-46 22 16 300 21-65 39 8 200 56-70 52 14
1110313108903	150	54-74	64 12	100	19-78 65 11 70 9-79 76 13 50 10-78 46 14
1110413108903	30	74-67	57 23	20.0	72-58 48 19 10.0 47-42 58 26 640 19-43 350 40
1110513108903	625	19-38	313 7	340	14-61 29 10 270 39-65 110 6 250 29-67 170 7
1110613108903	124	45-75	63 9	120	51-76 85 7 115 36-77 63 9 83 7-78 41 9
1110713108903	39	27-74	70 13	36	37-74 82 18 34 53-74 69 19 28.1 88-65 53 18
1110813108903	26.0	86-62	47 17	22.0	79-62 70 15 18.1 71-55 69 28 16.0 60-55 66 22
1110913108903	13.2	61-51	67 23	12.8	61-48 67 24 10.6 49-41 58 25 9.6 44-42 58 26



STATION: SOUTH POLE LAUNCH DATE: 17 OCT 89 247 Z ECC SONDE: 4A4437
 SURFACE CONDITIONS: PRESSURE 680.2 MB, TEMPERATURE -51.8 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 25.0 C AT 70.2 ORD;
 O3 ORD ZERO 35.3, BKGND 35.5, CAL 71.4; O3 BKGND 0.029 MICROAMP; FLOW RATE 27.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 145.; SONDE TOTAL O3 161.; C.F. .900

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	680.2	2835.	19.3	.028	50.6	.0000	-51.8			247.2		
1	665.0	2984.	18.2	.027	45.9	.0003	-44.4			257.1	21.1	16.
2	650.0	3140.	18.7	.029	45.4	.0007	-34.8	-39.0	66.0	269.6	21.1	16.
3	635.0	3303.	20.1	.032	48.5	.0010	-34.6	-41.0	53.2	271.6	12.2	40.
4	619.0	3482.	17.8	.029	43.0	.0014	-34.4	-40.7	53.5	273.9	15.0	52.
5	600.0	3699.	15.4	.026	37.3	.0018	-36.0	-42.4	52.4	274.5	19.6	59.
6	583.0	3898.	15.8	.027	38.6	.0022	-36.9	-43.4	51.5	275.6	16.8	56.
7	570.0	4054.	15.7	.028	38.7	.0024	-38.1	-44.6	51.2	276.0	13.9	57.
8	555.0	4237.	16.2	.029	39.9	.0028	-38.8	-45.6	49.5	277.3	11.9	71.
9	541.0	4412.	16.2	.030	40.0	.0031	-39.8	-46.9	47.3	278.2	12.6	84.
10	526.0	4604.	16.1	.031	40.1	.0034	-40.9			279.1	15.1	88.
11	511.0	4801.	15.3	.030	38.1	.0038	-41.8			280.3	14.5	91.
12	498.0	4975.	14.4	.029	36.1	.0041	-43.1			280.8	16.1	87.
13	483.0	5180.	13.9	.029	35.0	.0044	-44.5			281.5	18.5	86.
14	469.0	5376.	13.0	.028	32.9	.0048	-46.1			281.9	18.8	88.
15	455.0	5577.	13.0	.028	33.1	.0051	-47.7			282.4	21.7	85.
16	440.0	5798.	12.1	.027	31.0	.0054	-48.7			283.8	25.2	84.
17	428.0	5979.	11.6	.027	30.1	.0057	-50.2			284.1	24.6	86.
18	413.0	6211.	10.7	.026	28.0	.0060	-51.9			284.8	24.3	86.
19	400.0	6418.	10.7	.027	28.2	.0062	-53.5			285.4	23.0	83.
20	388.0	6613.	11.5	.030	30.5	.0065	-54.9			286.0	21.1	86.
21	376.0	6813.	13.6	.036	36.3	.0068	-56.6			286.4	23.7	84.
22	365.0	7001.	14.8	.041	39.7	.0071	-57.5			287.7	21.9	84.
23	353.0	7212.	16.0	.045	43.0	.0075	-58.5			289.1	19.4	87.
24	343.0	7392.	18.0	.052	48.5	.0079	-59.2			290.5	18.4	87.
25	333.0	7577.	20.3	.061	55.3	.0083	-60.8			290.8	18.5	87.
26	320.0	7825.	22.3	.070	60.7	.0090	-60.8			294.1	21.7	90.
27	307.0	8082.	20.7	.067	56.6	.0097	-61.9			296.0	20.9	92.
28	296.0	8307.	18.5	.063	50.9	.0103	-62.8			297.8	17.2	95.
29	288.0	8476.	18.9	.066	52.1	.0107	-63.8			298.8	19.4	96.
30	279.0	8670.	20.0	.072	55.3	.0111	-65.0			299.8	21.2	99.
31	270.0	8870.	20.3	.075	56.4	.0116	-65.4			302.0	19.3	100.
32	260.0	9099.	21.1	.081	58.9	.0122	-66.2			304.1	20.5	95.
33	250.0	9336.	23.0	.092	64.6	.0129	-67.7			305.4	18.9	95.
34	242.0	9531.	25.4	.105	71.5	.0135	-68.7			306.6	18.7	98.
35	233.0	9757.	28.3	.121	80.4	.0143	-70.1			307.9	18.9	94.
36	225.0	9965.	34.7	.154	98.7	.0151	-70.1			311.0	18.1	91.
37	217.0	10179.	40.3	.186	115.5	.0161	-71.7			311.7	18.7	91.
38	209.0	10401.	44.5	.213	127.8	.0173	-71.7			315.1	19.3	89.
39	201.0	10631.	49.4	.246	141.5	.0187	-71.7			318.6	19.4	99.
40	194.0	10840.	50.5	.260	145.1	.0201	-72.4			320.7	18.5	97.
41	187.1	11053.	48.6	.260	140.2	.0215	-73.2			322.9	14.4	99.
42	180.3	11270.	49.4	.274	142.4	.0229	-72.7			327.1	15.3	105.
43	173.6	11492.	51.7	.298	148.9	.0244	-72.7			330.6	14.0	93.
44	167.4	11706.	52.8	.316	152.1	.0259	-72.7			334.1	13.1	87.
45	161.6	11912.	52.5	.325	151.4	.0273	-73.2			336.7	13.2	91.
46	155.7	12130.	52.0	.334	150.8	.0288	-74.2			338.6	13.7	91.
47	149.9	12351.	51.8	.346	149.8	.0304	-73.4			343.5	18.0	92.
48	144.6	12562.	51.2	.354	148.8	.0318	-74.4			345.3	8.8	101.
49	139.2	12783.	50.9	.366	148.5	.0334	-75.2			347.7	1.8	184.

STATION: SOUTH POLE			LAUNCH DATE: 17 OCT 89 247 Z							ECC SONDE: 4A4437			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	133.9	13008.	47.9	.358	139.7	.0349	-75.2			351.6	9.3	101.	
51	128.8	13232.	43.9	.341	128.7	.0363	-76.3			353.6	13.8	96.	
52	123.7	13465.	29.0	.234	85.0	.0376	-76.5			357.2	14.6	95.	
53	118.5	13712.	19.7	.166	57.9	.0385	-76.8			361.1	15.1	92.	
54	113.4	13965.	17.4	.153	51.4	.0391	-77.6			364.2	14.5	88.	
55	108.8	14202.	12.9	.118	37.9	.0397	-77.6			368.5	5.5	116.	
56	104.2	14449.	11.2	.108	33.3	.0401	-77.9			372.5	1.9	169.	
57	99.8	14696.	8.9	.089	26.4	.0404	-77.6			377.7	4.0	99.	
58	96.0	14918.	7.0	.073	20.8	.0407	-78.8			379.6	3.5	119.	
59	92.3	15142.	6.2	.067	18.4	.0409	-77.6			386.2	4.2	112.	
60	88.4	15389.	6.2	.070	18.4	.0411	-77.6			391.0	6.7	132.	
61	84.6	15640.	5.5	.065	16.1	.0413	-78.2			394.8	3.9	177.	
62	81.1	15882.	4.3	.053	12.7	.0415	-78.2			399.6	1.4	222.	
63	77.9	16111.	3.9	.050	11.5	.0416	-78.5			403.6	12.9	99.	
64	74.5	16366.	3.9	.052	11.4	.0418	-77.6			410.6	18.3	92.	
65	71.1	16634.	3.9	.054	11.4	.0419	-77.4			416.7	9.2	86.	
66	68.0	16890.	3.1	.046	9.2	.0420	-77.6			421.4	4.0	86.	
67	65.1	17139.	3.9	.059	11.5	.0422	-78.2			425.5	13.0	100.	
68	62.3	17390.	11.6	.186	34.2	.0424	-77.6			432.1	13.9	103.	
69	59.4	17663.	15.3	.258	45.3	.0428	-77.4			438.7	13.2	95.	
70	56.9	17910.	15.7	.275	46.2	.0433	-76.8			445.4	12.5	91.	
71	54.4	18169.	18.4	.337	53.8	.0439	-76.5			451.7	13.2	86.	
72	51.9	18439.	19.3	.373	57.2	.0446	-77.6			455.3	13.9	91.	
73	49.4	18722.	18.5	.375	54.9	.0453	-77.6			461.7	13.9	91.	
74	47.1	18995.	19.3	.411	57.0	.0460	-77.4			468.7	13.2	96.	
75	45.0	19257.	19.7	.438	57.8	.0467	-76.3			477.6	14.7	114.	
76	42.9	19533.	21.5	.501	63.1	.0475	-76.0			484.8	24.4	106.	
77	40.9	19810.	23.4	.572	67.8	.0483	-74.2			496.0	19.2	105.	
78	39.0	20087.	23.4	.600	67.8	.0492	-73.9			503.4	13.6	97.	
79	37.2	20364.	27.4	.735	78.5	.0501	-72.2			514.7	19.3	88.	
80	35.3	20674.	33.7	.956	96.2	.0513	-70.8			526.1	20.4	88.	
81	33.5	20985.	41.3	1.233	117.5	.0527	-70.1			535.9	16.0	83.	
82	31.7	21314.	52.3	1.649	148.3	.0546	-69.6			545.6	19.2	91.	
83	30.4	21565.	64.8	2.131	181.4	.0565	-66.8			559.8	18.7	107.	
84	29.0	21852.	77.7	2.678	214.3	.0590	-63.8			575.7	19.8	106.	
85	27.7	22134.	82.7	2.985	226.2	.0618	-62.1			588.1	13.8	110.	
86	26.5	22409.	82.7	3.121	225.7	.0647	-61.5			597.1	14.7	109.	
87	25.2	22720.	78.1	3.099	213.4	.0679	-61.9			604.7	18.7	100.	
88	24.2	22972.	76.6	3.164	207.7	.0704	-60.3			616.5	10.7	103.	
89	23.3	23208.	73.5	3.155	198.6	.0727	-59.5			625.3	20.4	92.	
90	22.5	23428.	74.1	3.295	198.9	.0747	-58.0			636.3	14.5	89.	
91	21.7	23656.	71.3	3.284	190.8	.0768	-57.5			644.4	22.0	92.	
92	20.8	23924.	68.7	3.305	184.3	.0791	-57.8			651.2	18.6	106.	
93	19.9	24203.	68.5	3.441	182.5	.0815	-56.6			663.1	20.8	105.	
94	18.9	24532.	68.2	3.609	180.0	.0842	-54.3			680.2	31.7	94.	
95	18.1	24810.	67.7	3.739	177.6	.0865	-53.3			691.6	16.5	99.	
96	17.5	25027.	67.4	3.851	176.5	.0883	-52.7			700.3	10.6	113.	
97	16.8	25292.	65.8	3.915	171.6	.0905	-51.8			711.6	9.1	112.	
98	16.1	25568.	64.3	3.996	166.8	.0927	-50.4			724.8	10.0	111.	
99	15.5	25816.	63.1	4.070	163.3	.0946	-50.1			733.7	13.5	131.	
100	14.9	26075.	62.9	4.221	162.2	.0965	-49.3			744.5	30.1	102.	
101	14.3	26345.	61.9	4.329	159.5	.0985	-48.9			754.8	30.6	96.	
102	13.7	26627.	59.7	4.355	152.9	.1006	-47.8			767.7	6.8	117.	
103	13.1	26923.	58.4	4.458	149.3	.1027	-47.4			779.1	18.1	96.	
104	12.6	27180.	54.4	4.321	139.0	.1044	-47.2			788.3	25.2	91.	

STATION: SOUTH POLE LAUNCH DATE: 17 OCT 89 247 Z ECC SONDE: 4A4437

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	12.0	27503.	50.0	4.169	127.7	.1065	-46.9			800.4	13.1	91.
106	11.5	27785.	47.7	4.147	121.7	.1081	-46.8			810.7	18.7	91.
107	11.0	28081.	45.6	4.147	115.3	.1098	-44.4			830.0	11.1	99.
108	10.6	28331.	44.0	4.151	109.7	.1111	-41.8			848.1	14.2	97.
109	10.0	28727.	41.2	4.121	102.1	.1131	-40.2			868.5	21.5	91.
110	9.6	28999.	39.1	4.073	96.6	.1144	-38.9			883.1	10.6	91.
111	9.2	29269.	38.0	4.110	93.4	.1156	-38.5			894.6	17.8	96.
112	8.9	29550.	36.6	4.129	89.8	.1168	-37.8			907.7	17.8	96.

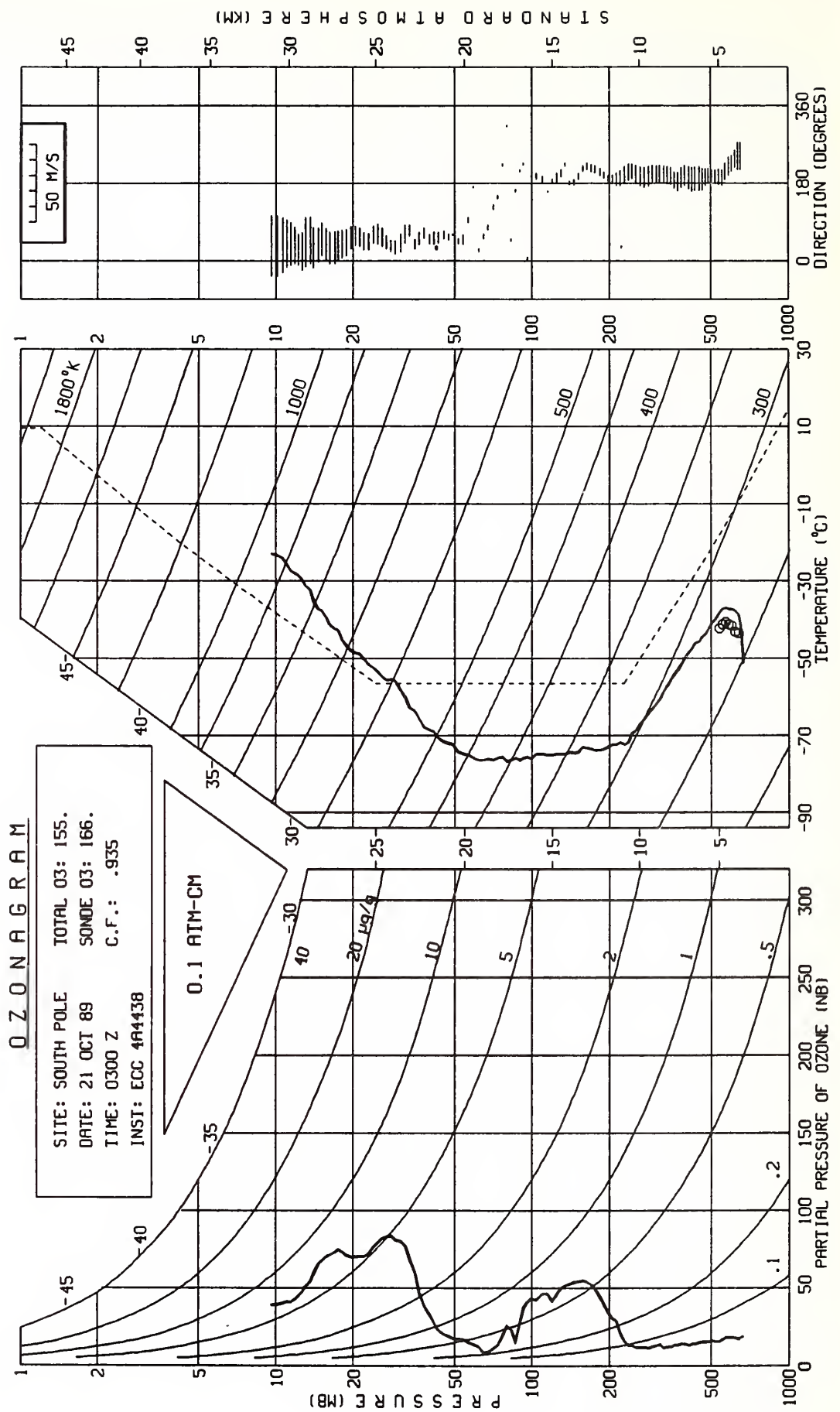
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
16.7	16.2	44.5	9.3	23.7	71.1	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110117108903	00145	99	.900	ECC	TOTAL O3 FROM SONDE DATA 161
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110217108903	680	19-52		500	15-43 88 16 300 19-62 94 19 200 50-72 99 19
1110317108903	150	52-73	92 18 100	9-78102	4 70 4-77 86 7 50 19-78 91 14
1110417108903	30	68-66107	1920.0	69-57105	2110.0 41-40 91 22 650 19-35 16 21
1110517108903	619	18-34	52 15 376	14-57 84 24	233 28-70 94 19 129 44-76 96 14
1110617108903	119	20-77	92 15 39	23-74 97 14	32 52-70 91 1927.7 83-62110 14
1110717108903	16.1	64-50151	1011.5	48-47 91 19	8.9 37-38 96 18



STATION: SOUTH POLE LAUNCH DATE: 21 OCT 89 300 Z ECC SONDE: 4A4438
 SURFACE CONDITIONS: PRESSURE 666.5 MB, TEMPERATURE -51.5 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 29.0 C AT 70.0 ORD;
 O3 ORD ZERO 32.1, BKGND 32.3, CAL 68.8; O3 BKGND 0.029 MICROAMP; FLOW RATE 26.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 155.; SONDE TOTAL O3 166.; C.F. .935

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	666.5	2835.	19.0	.028	49.4	.0000	-51.5			248.9		
1	653.0	2971.	18.5	.028	46.2	.0003	-41.9			261.2	17.9	243.
2	639.0	3118.	17.1	.027	42.2	.0006	-38.9	-43.8	60.5	266.3	17.9	243.
3	620.0	3326.	18.0	.029	44.2	.0010	-37.9	-43.4	57.1	269.7	11.4	237.
4	602.0	3529.	18.4	.031	45.0	.0014	-37.5	-41.8	65.3	272.4	10.2	226.
5	587.0	3703.	18.4	.031	45.0	.0018	-37.5	-41.5	67.3	274.4	11.9	220.
6	570.0	3906.	18.4	.032	45.0	.0022	-37.1	-40.9	68.7	277.2	10.4	207.
7	554.0	4103.	17.0	.031	41.6	.0026	-37.5	-41.5	67.5	279.0	9.9	193.
8	538.0	4305.	15.6	.029	38.4	.0030	-38.5	-42.5	67.1	280.2	10.3	195.
9	520.0	4538.	15.6	.030	38.6	.0034	-40.1			280.9	8.4	196.
10	505.0	4738.	16.0	.032	39.8	.0038	-41.1			282.1	8.0	197.
11	490.0	4942.	15.5	.032	38.8	.0041	-42.4			282.9	9.0	198.
12	477.0	5123.	15.4	.032	38.9	.0045	-43.9			283.3	11.1	194.
13	463.0	5323.	15.4	.033	39.1	.0048	-44.6			284.9	14.2	189.
14	450.0	5513.	15.0	.033	38.1	.0052	-45.9			285.6	15.8	191.
15	435.0	5739.	14.0	.032	35.8	.0056	-46.3			287.8	15.7	190.
16	422.0	5939.	14.0	.033	35.8	.0059	-47.7			288.4	15.3	189.
17	410.0	6130.	13.1	.032	33.6	.0062	-48.8			289.5	14.1	193.
18	396.0	6357.	13.9	.035	36.1	.0066	-50.1			290.6	13.3	198.
19	383.0	6574.	13.9	.036	36.4	.0069	-51.7			291.4	13.1	193.
20	372.0	6763.	13.5	.036	35.4	.0073	-53.1			291.9	11.9	184.
21	360.0	6974.	13.5	.037	35.5	.0076	-54.4			293.0	10.6	187.
22	349.0	7172.	12.1	.035	32.1	.0079	-55.8			293.6	10.9	197.
23	338.0	7375.	12.1	.036	32.3	.0082	-57.3			294.2	11.4	199.
24	327.0	7583.	11.7	.036	31.3	.0085	-58.7			295.1	11.5	200.
25	316.0	7797.	13.7	.043	37.4	.0088	-60.7			295.3	11.6	201.
26	306.0	7997.	12.9	.042	35.1	.0092	-62.0			296.2	10.8	201.
27	296.0	8202.	12.3	.042	34.0	.0095	-63.3			297.2	11.0	201.
28	286.0	8413.	11.5	.040	31.8	.0098	-64.4			298.5	13.1	196.
29	274.0	8674.	11.9	.043	33.1	.0102	-65.8			300.1	12.9	194.
30	264.0	8899.	11.9	.045	33.4	.0106	-67.3			301.2	12.2	196.
31	255.0	9107.	11.9	.047	33.5	.0109	-68.8			302.0	10.8	202.
32	246.0	9322.	13.1	.053	37.2	.0112	-69.5			304.1	9.4	208.
33	238.0	9518.	13.1	.055	37.7	.0116	-72.0			303.2	10.6	206.
34	230.0	9719.	15.7	.068	45.2	.0120	-72.5			305.4	11.2	199.
35	221.0	9954.	21.3	.096	61.2	.0125	-72.0			309.6	9.7	192.
36	213.0	10171.	28.9	.136	83.2	.0132	-72.5			312.2	8.0	189.
37	206.0	10367.	30.6	.148	87.9	.0139	-72.5			315.2	5.9	189.
38	198.4	10588.	34.1	.172	98.4	.0149	-73.0			317.8	4.2	191.
39	191.0	10810.	39.3	.206	113.9	.0159	-73.7			320.1	4.2	199.
40	183.6	11041.	44.6	.243	129.1	.0172	-74.0			323.3	4.6	206.
41	176.1	11284.	49.9	.283	144.7	.0187	-74.0			327.2	4.9	213.
42	170.1	11487.	52.2	.307	151.1	.0200	-73.7			330.9	5.2	216.
43	164.0	11700.	53.9	.329	155.9	.0215	-73.5			334.7	4.7	219.
44	158.0	11918.	55.0	.348	159.0	.0231	-73.2			338.7	3.9	215.
45	152.0	12144.	54.3	.357	157.7	.0248	-74.5			340.4	3.8	196.
46	146.2	12371.	53.8	.368	156.5	.0264	-74.7			343.7	4.0	182.
47	140.3	12610.	52.7	.376	153.1	.0281	-74.5			348.2	2.5	181.
48	134.8	12843.	51.6	.383	150.2	.0298	-75.0			351.3	2.2	223.
49	129.9	13058.	50.1	.386	145.9	.0312	-75.0			355.1	4.8	204.

STATION: SOUTH POLE			LAUNCH DATE: 21 OCT 89				300 Z	ECC SONDE: 4A4438				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	125.0	13281.	46.0	.368	134.0	.0327	-75.0			359.0	5.8	193.
51	120.0	13518.	41.9	.349	122.2	.0342	-75.2			362.7	2.2	187.
52	115.1	13759.	46.5	.404	135.9	.0356	-75.2			367.1	1.2	161.
53	109.9	14027.	46.4	.423	135.2	.0372	-75.0			372.4	3.2	190.
54	104.5	14320.	42.5	.407	123.8	.0390	-75.0			377.8	4.0	196.
55	99.5	14604.	43.3	.435	126.8	.0407	-76.3			380.6	.4	196.
56	96.1	14804.	41.1	.428	120.2	.0418	-75.8			385.4	1.8	5.
57	93.0	14994.	37.5	.403	109.7	.0429	-76.0			388.5	1.4	225.
58	89.9	15189.	27.5	.306	80.7	.0438	-76.6			391.3	1.6	209.
59	86.6	15405.	15.6	.180	45.9	.0445	-76.0			396.5	1.3	163.
60	83.3	15629.	23.5	.282	68.9	.0451	-76.6			399.9	1.3	48.
61	80.1	15854.	25.8	.322	75.9	.0458	-76.9			403.8	.8	314.
62	77.0	16082.	19.3	.250	56.3	.0465	-75.8			410.6	1.5	223.
63	73.8	16327.	13.5	.182	39.3	.0471	-76.0			415.1	2.4	148.
64	70.6	16583.	11.3	.160	33.4	.0476	-76.6			419.2	2.9	125.
65	67.5	16841.	8.9	.132	25.9	.0480	-76.3			425.2	3.2	77.
66	64.7	17085.	8.8	.136	25.8	.0483	-76.6			429.8	3.1	57.
67	61.9	17340.	12.5	.202	36.7	.0486	-76.6			435.3	2.1	24.
68	59.1	17607.	13.7	.232	40.2	.0491	-76.0			442.3	.9	172.
69	56.5	17867.	15.0	.265	43.6	.0496	-75.2			449.8	3.1	94.
70	53.9	18140.	16.9	.314	49.3	.0501	-75.0			456.5	6.0	49.
71	51.6	18394.	17.3	.335	50.3	.0507	-74.5			463.4	3.3	45.
72	49.2	18673.	17.7	.359	50.8	.0514	-72.5			474.5	1.4	60.
73	47.3	18904.	19.2	.405	55.1	.0519	-72.2			480.4	3.5	55.
74	45.3	19159.	20.4	.450	58.4	.0526	-71.8			487.6	5.1	59.
75	43.2	19439.	23.3	.539	66.4	.0534	-70.8			496.5	6.7	52.
76	41.6	19664.	27.6	.663	78.0	.0541	-69.2			505.8	7.9	52.
77	39.9	19913.	33.4	.836	94.2	.0550	-68.8			513.0	6.1	50.
78	38.0	20206.	39.0	1.026	109.7	.0564	-68.1			521.9	6.6	64.
79	36.3	20482.	46.8	1.290	130.4	.0578	-65.8			534.7	8.4	51.
80	35.0	20705.	59.2	1.690	163.2	.0592	-63.9			545.4	6.2	38.
81	33.3	21011.	68.5	2.057	188.1	.0617	-62.9			555.8	7.2	70.
82	32.0	21257.	77.3	2.415	209.7	.0639	-60.3			569.1	11.6	61.
83	30.7	21517.	80.0	2.606	215.0	.0664	-58.4			581.1	11.8	41.
84	29.2	21834.	81.1	2.778	215.6	.0696	-56.0			596.0	8.8	31.
85	28.1	22078.	83.8	2.983	222.5	.0720	-55.7			603.5	7.6	34.
86	27.0	22333.	83.3	3.084	221.1	.0747	-55.8			610.0	8.7	43.
87	26.0	22573.	82.1	3.156	217.1	.0771	-55.0			618.9	11.8	54.
88	25.0	22825.	79.0	3.159	207.7	.0796	-53.6			630.0	13.3	61.
89	24.0	23088.	76.4	3.182	199.8	.0821	-52.6			640.2	11.4	60.
90	23.0	23363.	72.0	3.129	187.8	.0847	-51.8			650.3	10.6	44.
91	22.0	23653.	70.4	3.199	182.3	.0872	-50.3			663.2	10.9	45.
92	21.2	23895.	70.5	3.324	181.5	.0892	-49.1			673.9	11.8	54.
93	20.4	24148.	70.3	3.445	180.9	.0913	-48.8			682.2	12.9	57.
94	19.6	24411.	70.0	3.571	179.9	.0935	-48.3			691.5	14.7	53.
95	18.8	24686.	71.2	3.788	181.7	.0958	-46.9			704.3	17.1	42.
96	18.1	24938.	73.3	4.048	185.8	.0980	-45.4			716.6	18.2	38.
97	17.5	25165.	74.7	4.267	187.3	.0999	-43.0			731.2	19.0	34.
98	17.0	25360.	73.4	4.316	183.6	.1016	-42.6			738.6	20.9	30.
99	16.2	25686.	71.6	4.419	178.5	.1044	-41.5			752.4	20.8	29.
100	15.7	25900.	70.4	4.482	174.1	.1061	-39.7			765.1	21.1	36.
101	15.1	26167.	67.9	4.493	166.5	.1083	-38.0			779.1	21.2	49.
102	14.6	26400.	65.4	4.481	160.3	.1100	-37.5			788.4	21.9	36.
103	14.0	26690.	59.4	4.246	144.3	.1121	-35.4			805.2	26.1	30.
104	13.6	26894.	54.4	4.000	130.6	.1135	-32.6			821.4	30.0	47.

STATION: SOUTH POLE			LAUNCH DATE: 21 OCT 89				300 Z	ECC SONDE: 4A4438				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	13.0	27212.	50.7	3.904	121.3	.1153	-31.4			836.2	31.8	42.
106	12.6	27434.	47.6	3.775	113.0	.1166	-29.9			848.8	24.5	21.
107	12.2	27665.	45.1	3.700	106.6	.1178	-28.7			860.8	20.2	25.
108	11.8	27904.	42.9	3.635	101.0	.1189	-28.2			870.9	23.7	35.
109	11.4	28151.	40.9	3.591	96.3	.1201	-27.7			881.5	27.5	39.
110	11.0	28409.	41.3	3.755	96.4	.1212	-25.8			897.2	30.9	40.
111	10.6	28678.	40.3	3.800	93.4	.1224	-24.4			912.1	35.5	36.
112	10.1	29031.	39.6	3.923	91.6	.1239	-23.6			927.8	39.3	34.
113	9.6	29402.	39.1	4.069	90.1	.1255	-23.2			942.8	39.3	34.

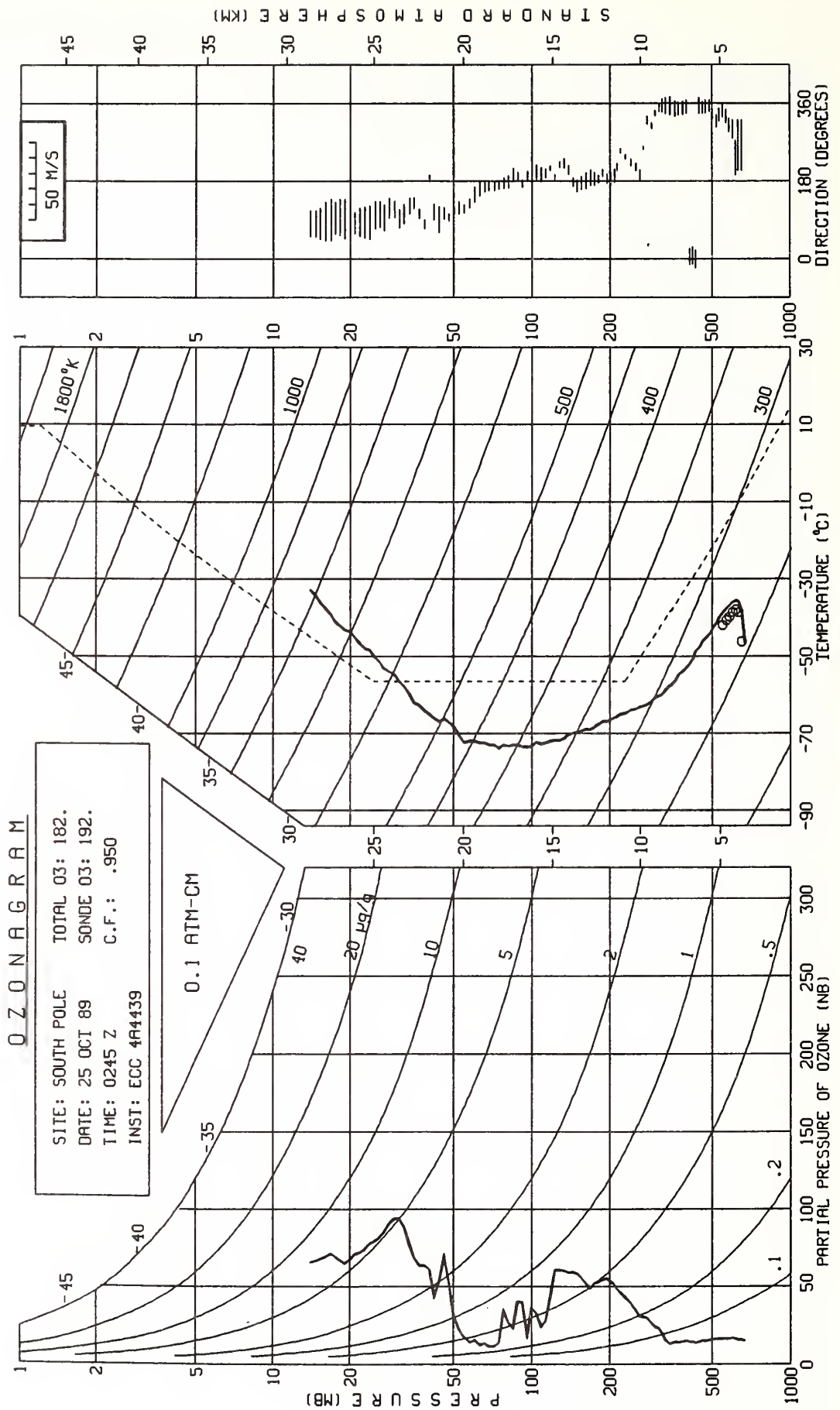
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
17.2	13.2	39.5	28.9	30.8	75.1	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110121108903	00155	99	.935	ECC	TOTAL O3 FROM SONDE DATA 166
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	P3TTTDDDDFFFP P3TTTDDDDFFFP
1110221108903	667	19-52		500	16-42197 8 300 13-63201 11 200 33-73191 5
1110321108903	150	54-75191	4	100	43-76196 1 70 11-77116 3 50 18-73 55 2
1110421108903	30	81-57 36	1020.0	70-49 55	1410.0 40-24 34 39 653 19-42243 18
1110521108903	639	17-39243	18	570	18-37207 10 238 13-72206 11 176 50-74213 5
1110621108903	120	42-75187	2	93	37-76225 1 87 16-76163 1 80 26-77314 1
1110721108903	38	39-68 64	7	32	77-60 61 1217.5 75-43 34 1914.6 65-38 36 22
1110821108903	13.6	54-33 47	30	9.6	39-23 34 39



STATION: SOUTH POLE LAUNCH DATE: 25 OCT 89 245 Z ECC SONDE: 4A4439
 SURFACE CONDITIONS: PRESSURE 668.0 MB, TEMPERATURE -46.9 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 26.5 C AT 72.2 ORD;
 O3 ORD ZERO 32.8, BKGND 33.0, CAL 63.3; O3 BKGND 0.035 MICROAMP; FLOW RATE 25.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 182.; SONDE TOTAL O3 192.; C.F. .950

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	668.0	2835.	14.8	.022	37.9	.0000	-46.9			253.9		
1	650.0	3019.	15.7	.024	38.6	.0003	-38.6	-46.4	44.4	265.3	32.7	263.
2	632.0	3213.	15.7	.025	38.2	.0007	-36.0	-38.8	76.7	270.4	32.7	263.
3	616.0	3392.	16.5	.027	40.2	.0010	-35.8	-38.2	80.1	272.6	22.7	234.
4	600.0	3574.	16.8	.028	41.0	.0013	-36.2	-38.8	78.4	274.2	12.0	301.
5	583.0	3774.	16.5	.028	40.4	.0017	-37.1	-40.0	76.1	275.4	9.0	311.
6	567.0	3966.	16.5	.029	40.6	.0021	-37.9	-40.9	75.1	276.6	8.3	331.
7	549.0	4188.	16.4	.030	40.6	.0025	-38.9	-42.2	72.1	278.1	8.8	344.
8	533.0	4390.	16.4	.031	40.7	.0028	-40.2			278.8	8.4	334.
9	520.0	4558.	16.0	.031	39.9	.0032	-41.6			279.1	7.9	320.
10	503.0	4783.	16.0	.032	39.9	.0036	-42.9			280.3	5.8	337.
11	490.0	4959.	15.5	.032	39.0	.0039	-44.4			280.5	7.7	355.
12	472.0	5209.	15.0	.032	38.0	.0044	-45.6			282.1	8.7	353.
13	460.0	5380.	15.0	.033	38.2	.0047	-46.4			283.1	8.2	351.
14	446.0	5585.	14.5	.033	37.3	.0050	-48.0			283.5	10.4	355.
15	432.0	5795.	13.7	.032	35.1	.0054	-48.9			285.0	11.5	0.
16	420.0	5979.	14.4	.034	37.6	.0057	-51.1			284.6	11.2	7.
17	409.0	6151.	14.4	.035	37.8	.0060	-52.1			285.3	10.6	4.
18	397.0	6343.	14.9	.038	39.0	.0063	-53.2			286.4	9.2	352.
19	384.0	6557.	14.4	.038	38.1	.0067	-54.2			287.8	8.6	350.
20	370.0	6795.	14.0	.038	36.9	.0071	-55.0			289.8	8.5	348.
21	358.0	7005.	14.3	.040	38.2	.0075	-56.7			290.3	10.0	348.
22	343.0	7276.	13.0	.038	35.0	.0080	-57.9			292.3	11.5	355.
23	330.0	7519.	15.2	.046	40.8	.0084	-58.9			294.1	10.7	356.
24	320.0	7711.	19.8	.062	53.8	.0087	-60.1			295.0	8.7	355.
25	310.0	7909.	23.2	.075	63.0	.0093	-60.5			297.2	5.2	350.
26	300.0	8113.	24.0	.080	65.4	.0099	-60.9			299.5	3.6	338.
27	290.0	8323.	26.5	.091	72.6	.0105	-62.0			300.8	3.7	309.
28	280.0	8540.	29.8	.107	81.9	.0113	-62.7			302.8	5.5	321.
29	270.0	8764.	30.5	.113	83.8	.0121	-63.1			305.4	2.5	257.
30	261.0	8973.	30.9	.118	85.0	.0129	-63.3			308.1	6.4	195.
31	252.0	9188.	35.0	.139	96.6	.0138	-63.9			310.3	4.7	213.
32	241.0	9461.	39.7	.165	109.6	.0150	-64.1			314.0	4.7	223.
33	230.0	9747.	43.2	.188	120.0	.0165	-65.0			316.7	3.4	237.
34	220.0	10018.	46.3	.211	128.8	.0181	-65.2			320.5	3.4	251.
35	213.0	10214.	48.5	.228	135.1	.0193	-65.8			322.5	4.8	213.
36	208.0	10359.	51.5	.247	143.4	.0202	-66.1			324.4	8.3	192.
37	201.0	10566.	53.7	.267	150.1	.0216	-66.7			326.6	8.3	185.
38	194.5	10765.	55.4	.285	155.1	.0229	-67.1			329.0	6.4	186.
39	187.8	10976.	54.6	.291	153.0	.0245	-67.1			332.3	4.9	199.
40	180.9	11202.	53.0	.293	149.0	.0261	-67.9			334.5	5.3	185.
41	174.2	11428.	52.2	.300	147.3	.0276	-68.6			337.1	8.5	185.
42	167.9	11648.	49.2	.293	139.4	.0291	-69.2			339.5	10.0	188.
43	161.3	11888.	52.6	.326	148.9	.0307	-69.2			343.4	10.2	181.
44	155.2	12118.	56.2	.362	159.5	.0323	-69.5			346.9	8.8	176.
45	149.7	12333.	58.5	.391	166.3	.0339	-69.9			349.7	7.7	170.
46	144.0	12564.	59.4	.412	168.8	.0357	-70.1			353.2	5.9	178.
47	138.3	12804.	59.3	.429	169.0	.0376	-70.6			356.5	6.2	206.
48	133.0	13035.	60.5	.455	173.3	.0394	-71.5			358.8	6.2	221.
49	127.8	13271.	60.8	.476	174.4	.0413	-72.0			362.1	3.8	218.

STATION: SOUTH POLE			LAUNCH DATE: 25 OCT 89				245 Z	ECC	SONDE: 4A4439			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	122.5	13520.	60.9	.497	174.7	.0433	-72.0			366.5	2.8	190.
51	117.4	13770.	42.2	.359	121.1	.0452	-72.2			370.5	3.5	210.
52	113.0	13995.	28.0	.248	80.6	.0464	-72.7			373.7	6.4	198.
53	108.6	14228.	24.3	.224	70.0	.0472	-73.0			377.5	9.7	195.
54	104.0	14482.	33.3	.321	95.9	.0481	-72.5			383.1	9.8	201.
55	99.8	14724.	36.4	.364	105.3	.0492	-73.7			385.3	7.3	200.
56	96.0	14950.	18.6	.194	53.9	.0502	-73.7			389.6	5.9	192.
57	92.0	15199.	40.2	.437	116.3	.0510	-73.7			394.4	5.3	174.
58	88.2	15446.	40.1	.454	115.7	.0523	-73.2			400.1	6.3	190.
59	84.8	15676.	23.4	.276	67.5	.0534	-73.2			404.7	7.5	196.
60	81.2	15930.	27.2	.335	78.6	.0542	-73.5			409.2	8.0	178.
61	78.0	16165.	34.5	.442	99.5	.0552	-73.2			414.4	7.1	175.
62	74.8	16410.	14.1	.188	40.6	.0561	-74.0			417.9	5.6	171.
63	71.5	16674.	11.6	.162	33.5	.0566	-73.2			424.9	5.5	168.
64	68.4	16933.	11.6	.169	33.5	.0570	-73.2			430.3	6.1	169.
65	65.8	17161.	13.6	.206	39.2	.0574	-72.7			436.1	7.7	168.
66	63.1	17407.	12.3	.196	35.6	.0578	-72.7			441.4	9.7	163.
67	60.2	17683.	15.6	.259	44.7	.0583	-72.2			448.5	9.9	149.
68	57.7	17933.	14.0	.242	40.1	.0588	-72.2			453.9	5.9	128.
69	54.9	18225.	17.9	.325	51.5	.0594	-72.5			459.9	5.5	116.
70	52.6	18478.	22.2	.423	63.3	.0600	-70.6			469.9	8.2	118.
71	50.2	18757.	29.9	.596	84.3	.0609	-68.4			481.4	5.3	112.
72	48.0	19026.	53.6	1.116	150.2	.0621	-67.3			490.2	4.9	96.
73	46.0	19284.	69.7	1.515	194.4	.0641	-66.3			498.7	7.8	105.
74	44.0	19552.	53.0	1.204	148.5	.0663	-67.1			503.0	16.7	91.
75	42.2	19805.	43.6	1.033	121.5	.0680	-66.3			511.1	10.4	108.
76	40.4	20070.	61.1	1.512	169.6	.0696	-65.2			520.1	3.9	186.
77	38.6	20348.	63.6	1.649	176.0	.0718	-64.4			528.9	6.1	80.
78	37.0	20608.	63.6	1.720	174.7	.0740	-62.9			539.3	5.8	103.
79	35.2	20915.	68.8	1.953	188.4	.0765	-62.3			548.5	7.5	129.
80	33.8	21167.	77.2	2.284	209.4	.0787	-60.1			560.7	10.3	122.
81	32.3	21452.	88.5	2.740	237.6	.0816	-58.0			573.7	12.6	103.
82	30.9	21732.	93.9	3.040	250.4	.0848	-56.7			584.6	12.1	93.
83	29.6	22005.	93.8	3.170	248.3	.0879	-55.0			596.4	10.8	114.
84	28.2	22316.	90.5	3.210	238.8	.0915	-54.2			607.0	13.1	117.
85	27.0	22595.	85.2	3.155	223.9	.0945	-53.4			616.8	17.1	95.
86	26.0	22839.	82.0	3.152	213.7	.0970	-51.8			627.9	16.9	102.
87	24.9	23120.	79.7	3.200	206.6	.0997	-50.6			639.3	18.2	101.
88	23.7	23443.	77.7	3.278	199.6	.1028	-48.6			654.1	21.6	84.
89	22.7	23727.	73.9	3.255	189.8	.1054	-48.3			663.1	19.7	84.
90	21.7	24025.	71.9	3.313	183.4	.1080	-46.9			676.0	18.2	85.
91	20.8	24306.	70.9	3.411	179.8	.1104	-45.4			688.6	14.2	83.
92	20.0	24569.	67.4	3.372	169.8	.1125	-44.0			700.8	14.9	88.
93	19.0	24913.	65.1	3.424	163.5	.1152	-43.4			712.9	25.6	92.
94	18.2	25203.	67.2	3.695	168.1	.1174	-42.3			725.2	23.7	96.
95	17.4	25508.	69.6	4.001	173.2	.1198	-41.2			738.1	21.0	94.
96	16.8	25747.	71.4	4.251	176.5	.1217	-39.5			750.9	27.1	90.
97	16.0	26082.	69.4	4.339	170.4	.1245	-37.9			766.7	25.4	86.
98	15.2	26437.	67.8	4.461	165.1	.1273	-36.2			783.8	20.7	81.
99	14.6	26718.	66.8	4.573	161.6	.1294	-34.4			798.7	17.2	81.
100	13.9	27062.	65.8	4.735	158.2	.1320	-33.0			815.0	17.2	81.

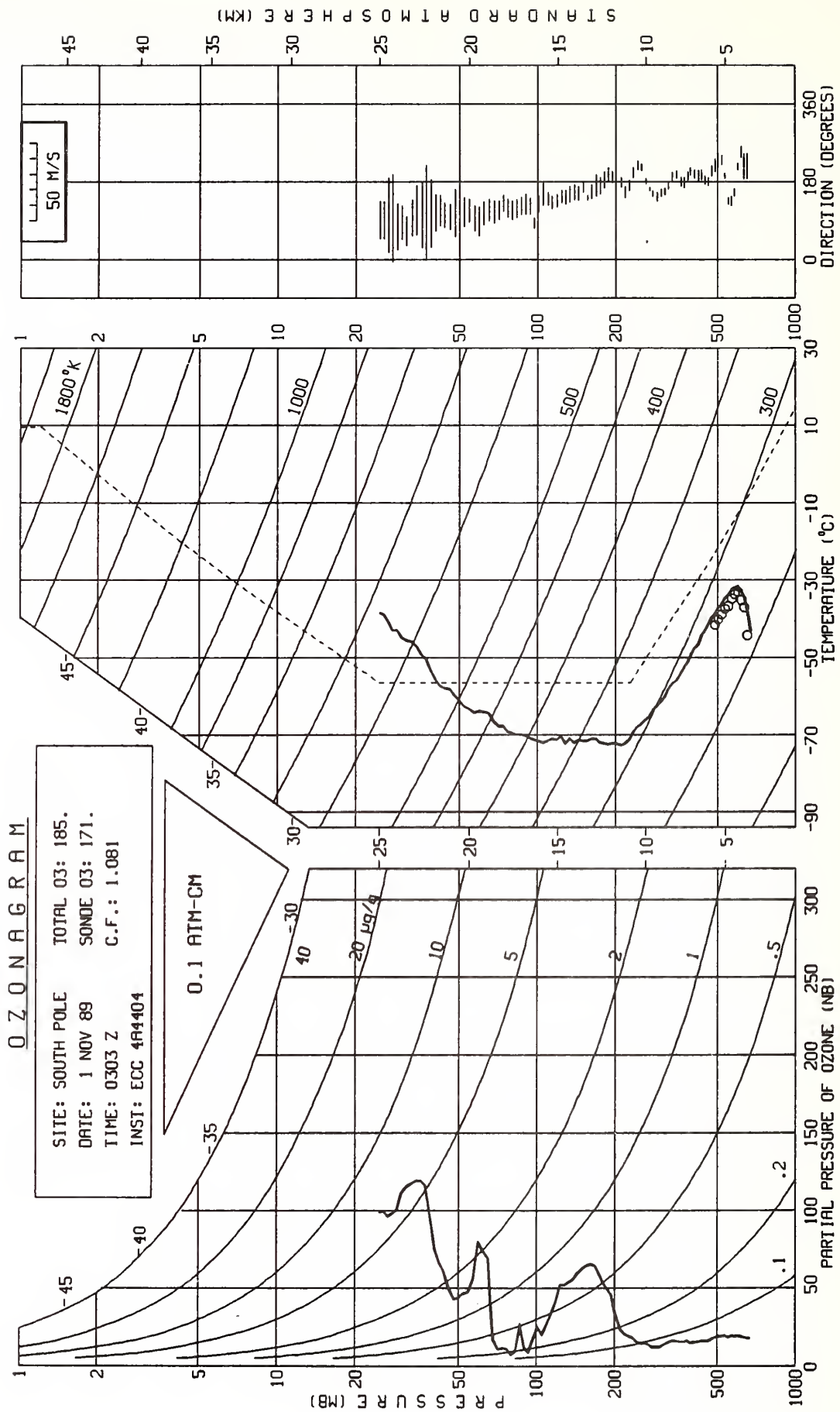
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
16.0	18.9	51.9	28.4	47.7	76.4	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110125108903	00182	99	.950	ECC	TOTAL O3 FROM SONDE DATA 192
ISNNYYMMJJGG	PPPP	P3TTTDDDDFF	PPPP	P3TTTDDDDFF	PPPP P3TTTDDDDFF
1110225108903	668	15-47		500	16-43341 6 300 24-61338 4 200 54-67185 8
1110325108903	150	58-70170	8	100	36-74200 7 70 12-73168 6 50 32-68111 5
1110425108903	30	94-56107	1120.0	67-44 88	15 650 16-39263 33 632 16-36263 33
1110525108903	397	15-53352	9	343	13-58355 12 168 49-69188 10 123 61-72190 3
1110625108903	113	28-73198	6	109	24-73195 10 96 19-74192 6 92 40-74174 5
1110725108903	88	40-73190	6	85	23-73196 8 78 34-73175 7 75 14-74171 6
1110825108903	55	18-73116	6	46	70-66105 8 42 44-66108 10 40 61-65186 4
1110925108903	35	69-62129	8	32	89-58103 1313.9 66-33 81 17



STATION: SOUTH POLE LAUNCH DATE: 1 NOV 89 303 Z ECC SONDE: 4A4404
 SURFACE CONDITIONS: PRESSURE 669.4 MB, TEMPERATURE -43.4 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.1 ORD; HUM 33.0 % AT 77.7 ORD; TBOX 25.6 C AT 71.5 ORD;
 O3 ORD ZERO 31.0, BKGND 31.5, CAL 64.6; O3 BKGND 0.078 MICROAMP; FLOW RATE 26.1 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 185.; SONDE TOTAL O3 171.; C.F. 1.081

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	669.4	2835.	18.0	.027	45.0	.0000	-43.4			257.7		
1	650.0	3035.	18.0	.028	44.1	.0004	-38.1	-44.5	52.2	265.8	15.8	216.
2	633.0	3219.	18.5	.029	44.9	.0008	-34.5	-37.3	77.2	272.0	15.8	216.
3	618.0	3387.	19.1	.031	46.0	.0011	-33.2	-35.4	81.9	275.4	7.0	249.
4	600.0	3596.	19.4	.032	46.2	.0016	-31.8	-33.3	88.7	279.3	4.3	216.
5	582.0	3811.	19.0	.033	45.6	.0020	-32.1	-33.9	85.8	281.4	4.8	155.
6	568.0	3983.	19.6	.034	47.0	.0024	-32.5	-35.0	79.7	282.9	6.0	136.
7	550.0	4209.	18.5	.034	44.7	.0029	-34.0	-37.0	75.0	283.8	4.4	135.
8	535.0	4402.	19.7	.037	47.6	.0033	-34.9	-37.7	76.8	284.9	3.0	194.
9	520.0	4600.	19.0	.037	46.5	.0037	-36.2	-39.1	76.4	285.6	6.0	230.
10	503.0	4830.	19.0	.038	46.7	.0042	-37.4	-40.4	75.2	286.9	8.5	229.
11	489.0	5025.	18.5	.038	45.4	.0046	-38.7	-41.8	73.3	287.7	8.6	218.
12	473.0	5253.	17.2	.036	42.7	.0051	-40.0			288.7	6.8	205.
13	460.0	5442.	16.0	.035	40.0	.0055	-41.5			289.1	5.4	181.
14	446.0	5651.	16.1	.036	40.3	.0059	-43.1			289.8	5.3	184.
15	432.0	5866.	16.1	.037	40.8	.0063	-44.5			290.6	6.1	196.
16	420.0	6053.	15.6	.037	39.9	.0066	-46.9			289.8	6.4	195.
17	405.0	6294.	15.1	.037	38.7	.0071	-47.8			291.7	5.6	198.
18	391.0	6525.	15.0	.038	38.9	.0075	-49.6			292.3	4.9	204.
19	381.0	6694.	16.1	.042	42.0	.0078	-51.3			292.3	5.3	193.
20	369.0	6901.	15.6	.042	40.9	.0082	-52.9			292.9	6.4	178.
21	359.0	7078.	15.6	.043	41.1	.0085	-54.3			293.3	6.0	180.
22	346.0	7313.	16.1	.047	42.8	.0090	-56.1			293.9	4.9	197.
23	333.0	7556.	16.1	.048	43.0	.0094	-56.9			296.0	4.9	193.
24	321.0	7788.	14.9	.046	40.2	.0099	-58.5			297.0	4.8	171.
25	311.0	7986.	13.8	.045	37.5	.0103	-60.4			297.0	4.4	158.
26	301.0	8189.	12.1	.040	33.1	.0106	-61.7			298.0	4.9	154.
27	290.0	8419.	12.1	.042	33.3	.0110	-62.8			299.6	5.6	145.
28	280.0	8635.	12.0	.043	33.2	.0113	-63.8			301.2	3.8	152.
29	272.0	8812.	13.6	.050	37.9	.0116	-65.4			301.4	2.6	163.
30	263.0	9016.	14.6	.056	40.9	.0119	-66.2			303.1	3.9	181.
31	252.0	9274.	14.6	.058	41.1	.0124	-67.5			305.0	4.5	214.
32	244.0	9468.	15.7	.064	44.1	.0128	-68.1			306.8	5.6	218.
33	234.0	9719.	18.3	.078	51.9	.0133	-69.6			308.2	6.8	201.
34	226.0	9925.	19.4	.086	55.3	.0138	-71.5			308.5	6.7	171.
35	218.0	10138.	20.8	.095	59.8	.0144	-72.4			310.2	7.1	156.
36	210.0	10357.	23.8	.113	68.6	.0150	-72.9			312.8	6.6	179.
37	200.0	10644.	34.8	.174	100.0	.0160	-72.4			317.9	7.7	192.
38	194.2	10817.	45.5	.234	131.0	.0169	-72.4			320.6	7.1	191.
39	187.7	11017.	49.3	.263	142.1	.0181	-72.7			323.4	8.0	198.
40	181.0	11230.	53.6	.296	154.4	.0195	-72.4			327.1	10.5	184.
41	174.2	11456.	58.8	.338	169.0	.0212	-72.2			331.1	11.2	171.
42	168.0	11669.	64.6	.384	184.5	.0229	-71.2			336.1	14.0	172.
43	162.0	11885.	65.3	.403	186.7	.0247	-71.2			339.7	9.1	157.
44	155.9	12111.	64.7	.415	185.5	.0267	-71.7			342.6	3.5	143.
45	150.0	12339.	62.6	.417	179.5	.0286	-71.7			346.4	7.0	169.
46	144.3	12568.	59.6	.413	170.4	.0305	-71.5			350.7	9.1	153.
47	139.0	12788.	55.9	.402	160.5	.0322	-72.2			353.2	9.7	155.
48	133.3	13035.	54.1	.406	154.6	.0340	-71.2			359.1	10.2	151.
49	128.5	13252.	52.2	.406	150.3	.0356	-72.4			360.8	9.0	144.

STATION: SOUTH POLE			LAUNCH DATE: 1 NOV 89 303 Z			ECC SONDE: 4A4404						
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	123.6	13481.	52.2	.423	148.9	.0372	-70.5			368.2	7.9	146.
51	118.8	13716.	41.1	.346	117.8	.0387	-71.5			370.7	8.0	136.
52	113.9	13965.	33.1	.291	94.6	.0400	-71.2			375.6	7.4	131.
53	109.6	14192.	26.7	.244	76.7	.0409	-71.7			378.9	8.3	141.
54	105.2	14434.	20.4	.194	58.6	.0417	-72.2			382.4	14.1	151.
55	101.0	14674.	25.3	.251	72.5	.0424	-71.7			387.8	10.1	129.
56	97.1	14906.	17.3	.178	49.6	.0432	-71.5			392.7	6.6	84.
57	93.5	15130.	9.0	.096	25.5	.0436	-71.0			397.9	10.6	123.
58	89.9	15362.	11.4	.126	32.3	.0439	-70.3			403.7	13.3	129.
59	86.2	15612.	25.8	.300	73.3	.0444	-70.1			409.1	11.2	124.
60	82.9	15844.	9.3	.112	26.5	.0451	-70.1			413.7	11.6	117.
61	79.8	16071.	7.4	.092	20.9	.0453	-69.6			419.1	12.4	113.
62	76.8	16300.	11.2	.146	31.9	.0456	-69.4			424.2	11.6	119.
63	73.9	16531.	11.7	.158	33.0	.0459	-67.9			432.1	10.6	130.
64	71.0	16771.	10.8	.152	30.3	.0463	-67.9			437.1	12.2	114.
65	68.0	17031.	17.2	.253	48.2	.0467	-66.8			444.8	14.7	110.
66	65.0	17306.	69.3	1.066	192.0	.0478	-64.6			455.4	14.4	114.
67	62.1	17585.	73.9	1.189	204.0	.0503	-64.2			462.3	15.2	106.
68	59.5	17847.	79.2	1.330	218.5	.0528	-64.0			468.4	19.1	88.
69	57.0	18109.	55.9	.981	154.8	.0552	-64.4			473.3	16.5	95.
70	54.4	18395.	47.4	.871	130.4	.0572	-63.4			481.9	14.6	113.
71	52.1	18661.	46.6	.895	128.0	.0588	-62.8			489.2	19.1	109.
72	50.0	18916.	43.8	.876	119.5	.0603	-61.3			498.5	29.7	117.
73	48.0	19170.	43.0	.897	116.6	.0617	-60.1			507.4	30.8	107.
74	45.9	19450.	49.9	1.086	134.0	.0633	-58.3			518.2	16.3	98.
75	43.8	19745.	61.1	1.395	164.1	.0652	-58.1			525.6	15.9	102.
76	42.0	20009.	66.5	1.584	177.9	.0673	-57.5			533.6	19.9	113.
77	40.4	20256.	74.9	1.855	199.1	.0694	-55.8			543.8	23.3	108.
78	38.9	20498.	94.5	2.430	248.6	.0717	-53.7			555.0	44.0	106.
79	37.1	20805.	116.1	3.131	301.2	.0755	-50.5			570.6	61.2	108.
80	35.8	21038.	119.1	3.326	307.5	.0787	-49.5			579.2	42.1	102.
81	34.2	21339.	119.1	3.482	304.2	.0830	-47.2			592.7	32.1	114.
82	32.8	21616.	117.4	3.581	298.7	.0869	-46.1			602.9	23.8	96.
83	31.2	21949.	114.9	3.681	291.7	.0915	-45.8			612.3	18.6	65.
84	30.0	22211.	110.7	3.691	280.2	.0950	-45.1			621.2	22.0	85.
85	28.8	22484.	100.1	3.477	251.3	.0984	-43.1			633.9	29.9	75.
86	27.6	22771.	98.1	3.554	246.2	.1017	-43.2			641.3	56.5	95.
87	26.6	23021.	96.4	3.622	239.5	.1046	-41.0			654.4	48.2	102.
88	25.6	23283.	99.6	3.891	245.7	.1075	-39.1			667.1	24.5	91.
89	24.7	23528.	99.3	4.019	244.5	.1103	-38.7			675.1	24.5	91.

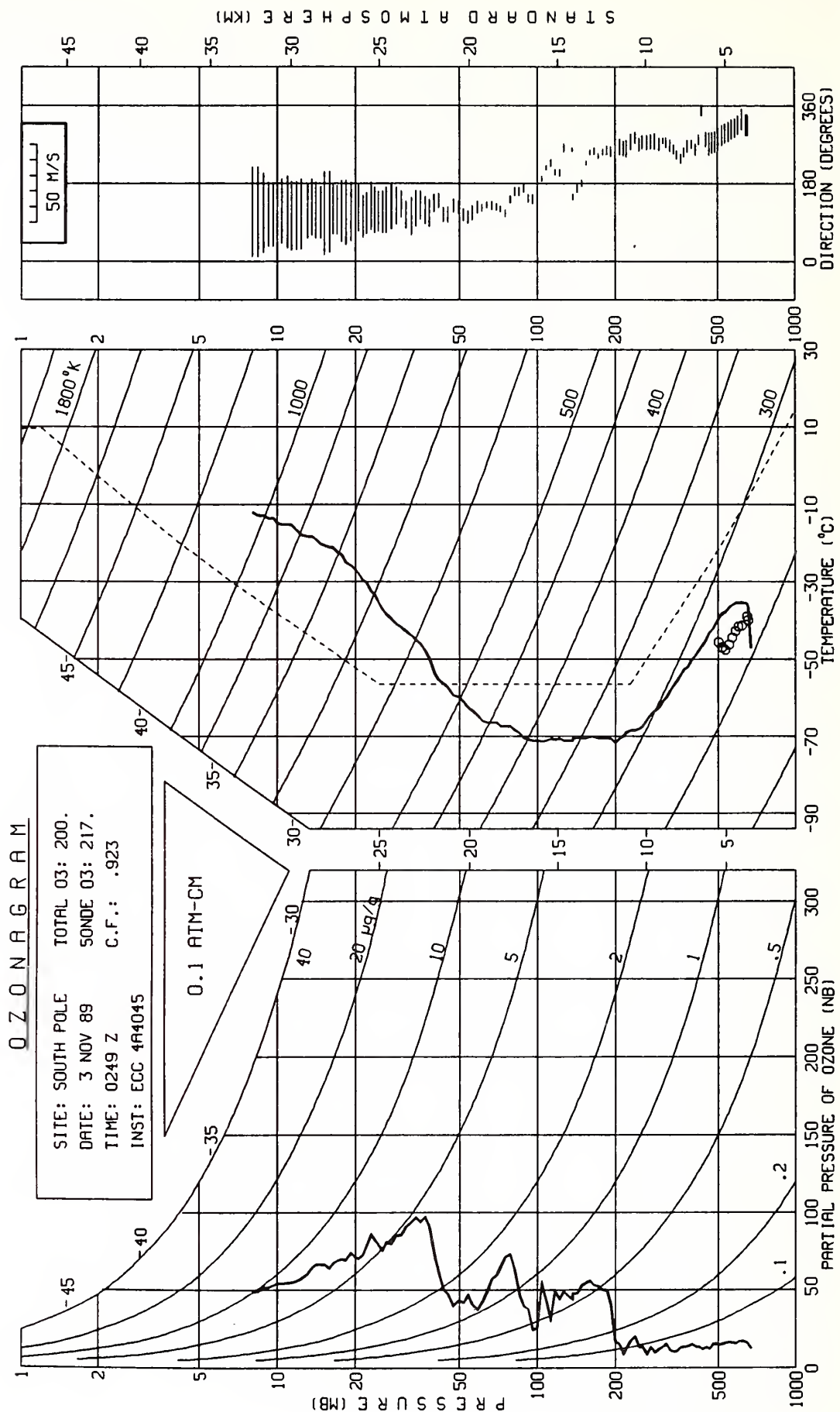
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
18.7	15.0	44.2	24.2	75.8	999.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110101118903	00185		991.081	ECC	TOTAL O3 FROM SONDE DATA 171
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110201118903	669	18-43		500	19-38227 9 300 12-62153 5 200 35-72192 8
1110301118903	150	63-72169	7	100	23-72118 9 70 13-68113 13 50 44-61117 30
1110401118903	30111	-45 85 22	633	18-35216	16 600 19-32216 4 226 19-72171 7
1110501118903	168	65-71172	14	124	52-71146 8 105 20-72151 14 94 9-71123 11
1110601118903	86	26-70124	11	83	9-70117 12 68 17-67110 15 65 69-65114 14
1110701118903	60	79-64 88	19	57	56-64 95 17 48 43-60107 31 42 67-58113 20
1110801118903	40	75-56108	23	37116-51108	61 34119-47114 3228.8100-43 75 30
1110901118903	24.7	99-39 91	25		



STATION: SOUTH POLE LAUNCH DATE: 3 NOV 89 249 Z ECC SONDE: 4A4045
 SURFACE CONDITIONS: PRESSURE 670.3 MB, TEMPERATURE -47.4 C, HUMIDITY 0.0 %
 CAL DATA: AIR TEMP 30.0 C AT 73.6 ORD; HUM 33.0 % AT 78.3 ORD; TBOX 23.2 C AT 70.8 ORD;
 O3 ORD ZERO 35.4, BKGND 35.8, CAL 72.0; O3 BKGND 0.058 MICROAMP; FLOW RATE 25.6 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 200.; SONDE TOTAL O3 217.; C.F. .923

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	670.3	2835.	12.3	.018	31.4	.0000	-47.4			253.1		
1	655.0	2991.	15.2	.023	37.2	.0002	-36.8	-40.2	71.9	266.8	13.5	316.
2	648.0	3066.	16.0	.025	38.9	.0004	-35.8	-39.2	72.3	268.6	13.5	316.
3	620.0	3373.	16.9	.027	41.0	.0009	-35.7	-41.6	55.8	272.2	13.5	329.
4	601.0	3589.	16.8	.028	41.0	.0013	-35.7	-41.8	54.4	274.6	11.7	315.
5	585.0	3777.	15.6	.027	37.9	.0017	-35.7	-43.0	48.1	276.8	11.8	309.
6	568.0	3982.	16.0	.028	38.9	.0021	-36.2	-44.7	42.2	278.5	12.2	305.
7	552.0	4180.	16.3	.030	40.0	.0024	-36.8	-46.5	36.1	280.1	12.6	300.
8	535.0	4396.	16.0	.030	39.2	.0028	-38.0	-47.9	35.0	281.2	12.8	296.
9	520.0	4592.	15.1	.029	37.3	.0032	-38.4	-47.2	39.4	283.0	13.2	292.
10	503.0	4820.	14.8	.029	36.5	.0036	-39.7	-45.9	52.5	284.1	13.4	285.
11	490.0	4998.	15.1	.031	37.7	.0039	-41.0			284.7	13.1	277.
12	477.0	5181.	15.1	.032	37.9	.0042	-42.5			285.0	13.3	275.
13	463.0	5381.	11.8	.026	29.8	.0045	-43.4			286.3	14.1	272.
14	449.0	5587.	13.1	.029	33.1	.0048	-45.1			286.7	9.3	282.
15	435.0	5798.	11.8	.027	30.2	.0051	-46.7			287.3	5.2	347.
16	421.0	6014.	13.5	.032	34.5	.0054	-48.1			288.1	6.1	282.
17	409.0	6205.	13.5	.033	34.6	.0057	-49.1			289.2	7.1	259.
18	396.0	6416.	15.0	.038	39.0	.0061	-50.3			290.3	5.2	271.
19	382.0	6650.	13.8	.036	36.2	.0065	-52.2			290.9	7.5	267.
20	370.0	6856.	13.4	.036	35.2	.0068	-52.8			292.8	6.0	252.
21	359.0	7050.	13.0	.036	34.2	.0071	-54.2			293.4	5.8	238.
22	348.0	7249.	10.9	.031	29.0	.0074	-55.8			293.9	5.3	246.
23	338.0	7434.	10.2	.030	27.1	.0077	-56.9			294.8	5.6	260.
24	326.0	7663.	11.0	.034	29.5	.0080	-58.4			295.8	7.7	268.
25	315.0	7878.	15.3	.049	41.5	.0083	-60.2			296.3	6.1	275.
26	306.0	8058.	13.7	.045	37.3	.0087	-61.1			297.5	3.8	279.
27	296.0	8264.	12.1	.041	33.2	.0090	-62.7			298.0	8.0	271.
28	285.0	8497.	9.7	.034	26.8	.0093	-63.6			299.9	9.9	278.
29	274.0	8738.	13.3	.049	36.7	.0097	-64.6			301.9	9.1	277.
30	265.0	8941.	8.9	.033	24.8	.0100	-65.8			303.1	9.1	275.
31	255.0	9174.	13.3	.052	37.4	.0103	-67.6			303.8	8.8	275.
32	247.0	9365.	13.3	.054	37.5	.0106	-68.2			305.6	8.4	270.
33	239.0	9563.	19.9	.083	56.4	.0110	-68.6			307.9	7.6	286.
34	230.0	9793.	17.5	.076	49.6	.0116	-68.6			311.3	9.9	276.
35	221.0	10032.	12.5	.056	35.2	.0121	-69.1			314.2	11.0	261.
36	215.0	10196.	8.9	.041	25.2	.0123	-70.2			315.0	9.4	262.
37	208.0	10392.	15.1	.073	43.1	.0126	-70.8			316.9	10.3	265.
38	200.0	10624.	16.9	.084	48.6	.0131	-72.0			318.7	8.6	260.
39	192.4	10853.	40.6	.211	115.9	.0138	-70.8			324.0	6.6	255.
40	185.5	11069.	50.0	.269	142.7	.0150	-70.8			327.4	5.8	257.
41	178.8	11287.	50.2	.281	143.3	.0164	-70.8			330.9	3.9	253.
42	172.2	11510.	52.4	.304	149.5	.0179	-70.8			334.5	3.2	243.
43	166.0	11728.	53.3	.321	151.6	.0194	-70.4			338.7	4.2	255.
44	160.2	11939.	56.1	.350	159.9	.0209	-70.4			342.2	3.2	252.
45	154.4	12158.	54.8	.355	156.3	.0225	-70.8			345.1	2.6	228.
46	148.6	12385.	53.1	.357	151.5	.0241	-70.8			348.9	4.0	181.
47	142.9	12617.	47.8	.335	136.4	.0257	-70.6			353.2	4.8	167.
48	137.3	12854.	47.7	.348	136.3	.0272	-70.8			356.8	3.9	149.
49	136.9	12871.	44.1	.322	126.3	.0273	-71.3			356.3	2.3	258.

STATION: SOUTH POLE			LAUNCH DATE: 3 NOV 89				249 Z	ECC	SONDE: 4A4045			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	126.5	13338.	49.2	.389	140.8	.0301	-71.3			364.5	5.5	262.
51	122.0	13553.	44.2	.363	126.3	.0315	-70.8			369.1	4.1	205.
52	117.3	13785.	49.5	.422	141.3	.0329	-71.0			372.8	3.8	206.
53	112.8	14017.	31.4	.278	89.6	.0343	-70.8			377.4	4.0	227.
54	108.3	14258.	43.9	.405	125.5	.0354	-71.3			381.0	2.8	217.
55	104.2	14486.	54.3	.521	155.4	.0368	-71.5			384.8	3.3	191.
56	100.0	14729.	25.6	.256	73.1	.0383	-71.3			389.8	4.1	173.
57	96.2	14958.	24.5	.254	70.0	.0390	-71.3			394.1	5.6	143.
58	92.5	15190.	37.8	.408	107.7	.0399	-71.0			399.0	5.0	145.
59	89.0	15419.	39.8	.447	113.6	.0410	-70.8			403.9	4.9	168.
60	85.5	15658.	46.9	.549	132.9	.0423	-69.3			411.7	5.7	161.
61	82.0	15908.	62.9	.767	177.5	.0440	-68.6			417.9	5.6	161.
62	78.7	16154.	73.3	.932	206.0	.0461	-67.6			425.0	4.1	143.
63	75.2	16428.	71.6	.953	201.3	.0487	-67.6			430.6	4.2	110.
64	72.2	16673.	65.1	.902	182.7	.0510	-67.6			435.6	4.1	121.
65	69.6	16895.	59.3	.852	165.7	.0528	-66.6			442.4	4.7	127.
66	66.8	17143.	57.2	.857	159.9	.0547	-66.6			447.6	5.0	129.
67	64.0	17402.	49.0	.766	137.1	.0565	-66.6			453.1	3.7	130.
68	61.3	17663.	42.4	.691	118.2	.0581	-66.2			459.6	4.3	123.
69	58.9	17906.	37.5	.636	104.0	.0594	-64.8			468.0	7.7	124.
70	56.1	18204.	40.6	.724	112.0	.0609	-63.6			477.2	9.1	111.
71	54.0	18439.	47.0	.870	128.8	.0621	-62.7			484.6	8.0	102.
72	51.9	18684.	41.9	.808	114.2	.0636	-61.2			493.5	7.8	107.
73	49.6	18967.	43.5	.877	117.9	.0651	-60.0			502.9	7.6	125.
74	47.3	19263.	39.8	.841	107.6	.0666	-59.6			510.6	8.5	128.
75	45.2	19549.	47.6	1.052	127.3	.0681	-57.6			522.2	9.8	108.
76	43.4	19806.	50.2	1.157	133.9	.0697	-56.6			530.7	9.6	108.
77	41.5	20091.	61.6	1.484	163.3	.0716	-55.5			540.4	9.5	140.
78	40.0	20326.	72.8	1.819	191.7	.0734	-53.9			550.1	11.2	134.
79	38.3	20608.	90.8	2.370	234.9	.0761	-50.0			566.7	17.2	110.
80	37.0	20834.	97.2	2.628	249.4	.0786	-48.1			577.2	17.7	118.
81	35.4	21127.	93.8	2.650	238.7	.0819	-46.2			589.4	18.4	129.
82	34.0	21396.	96.9	2.851	245.6	.0849	-45.3			598.9	23.0	122.
83	32.6	21677.	93.6	2.872	236.0	.0881	-44.1			609.1	24.0	104.
84	31.1	21994.	90.8	2.918	227.6	.0915	-43.0			620.4	17.1	107.
85	29.9	22259.	85.4	2.856	213.4	.0943	-42.0			630.0	16.8	132.
86	28.5	22585.	85.1	2.987	211.9	.0975	-41.2			641.0	24.2	128.
87	27.3	22878.	79.8	2.922	197.3	.1003	-39.9			652.7	28.3	125.
88	26.2	23160.	80.8	3.084	198.9	.1029	-38.5			664.2	29.6	118.
89	25.3	23400.	75.6	2.989	185.0	.1051	-37.3			674.3	27.3	114.
90	24.4	23652.	79.2	3.247	192.4	.1073	-35.5			686.7	25.7	115.
91	23.6	23885.	82.6	3.502	199.1	.1094	-33.5			699.1	29.4	119.
92	22.9	24096.	86.1	3.758	206.5	.1113	-32.7			707.5	31.2	128.
93	22.0	24380.	78.4	3.563	186.5	.1140	-30.4			722.3	26.8	111.
94	21.3	24610.	72.6	3.407	172.2	.1159	-29.8			730.9	26.9	103.
95	20.5	24884.	70.4	3.437	166.0	.1181	-28.1			744.1	29.9	123.
96	20.0	25062.	70.8	3.541	166.2	.1194	-27.2			752.2	34.8	118.
97	19.2	25356.	74.2	3.866	173.6	.1217	-26.1			764.3	38.2	115.
98	18.3	25704.	69.3	3.789	161.4	.1244	-25.2			777.8	42.0	113.
99	17.6	25989.	70.0	3.977	161.7	.1266	-23.2			792.8	39.7	116.
100	16.9	26286.	69.0	4.081	158.9	.1288	-22.5			804.1	31.3	119.
101	16.3	26552.	67.1	4.118	154.0	.1308	-21.3			816.4	32.0	120.
102	15.8	26782.	64.2	4.061	147.2	.1324	-21.3			823.7	52.0	114.
103	15.1	27117.	66.5	4.403	152.2	.1347	-20.8			836.2	53.5	111.
104	14.6	27366.	66.6	4.560	152.2	.1365	-20.5			845.2	33.5	113.

STATION: SOUTH POLE			LAUNCH DATE: 3 NOV 89 249 Z				ECC SONDE: 4A4045					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	14.0	27677.	66.7	4.762	151.5	.1386	-19.2			859.9	36.3	118.
106	13.5	27948.	64.4	4.774	146.3	.1405	-18.5			871.2	36.1	125.
107	13.0	28229.	60.5	4.652	137.2	.1424	-18.5			880.7	34.7	115.
108	12.3	28643.	57.7	4.692	130.6	.1450	-18.1			896.1	45.6	109.
109	11.8	28953.	55.9	4.734	125.8	.1469	-16.9			911.2	44.1	105.
110	11.3	29279.	54.9	4.862	123.2	.1488	-15.5			927.5	44.4	105.
111	10.9	29551.	54.5	4.998	122.1	.1503	-15.4			937.6	46.5	114.
112	10.4	29906.	54.3	5.220	121.6	.1524	-15.4			950.2	41.6	116.
113	10.0	30202.	54.4	5.438	121.7	.1540	-15.1			962.0	41.4	112.
114	9.6	30480.	53.3	5.526	118.6	.1556	-13.7			977.3	40.6	108.
115	9.2	30802.	51.8	5.606	115.3	.1573	-13.8			988.7	41.8	109.
116	8.8	31139.	51.8	5.859	115.0	.1591	-13.1			1004.0	51.5	112.
117	8.4	31500.	49.3	5.849	109.5	.1610	-13.1			1017.7	57.9	114.
118	8.0	31881.	48.8	6.079	107.9	.1630	-12.3			1035.7	57.9	114.

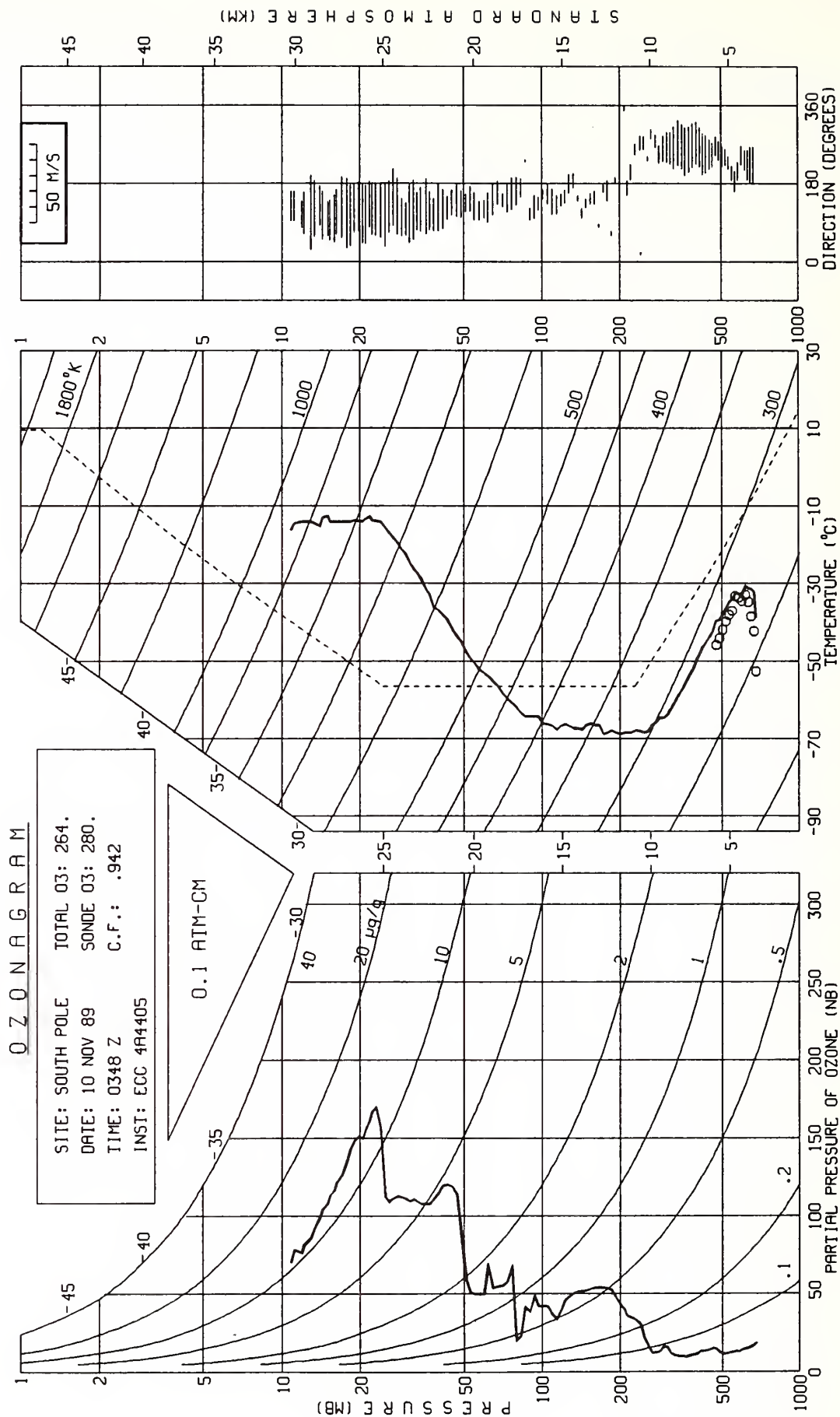
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
15.6	12.6	36.7	49.0	61.8	76.4	57.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110103118903	00200	99	.923	ECC	TOTAL O3 FROM SONDE DATA 217
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110203118903	670	12-47		500	15-40283 13 300 13-62274 6 200 17-72260 9
1110303118903	150	53-71193	4	100	26-71173 4 70 60-67126 5 50 43-60122 8
1110403118903	30	86-42130	1720.0	71-27118	3510.0 54-15112 41 655 15-37316 14
1110503118903	648	16-36316	14	585	16-36309 12 255 13-68275 9 239 20-69286 8
1110603118903	215	9-70262	9	192	41-71255 7 186 50-71257 6 137 44-71258 2
1110703118903	117	49-71206	4	113	31-71227 4 104 54-72191 3 96 24-71143 6
1110803118903	86	47-69161	6	79	73-68143 4 61 42-66123 4 47 40-60128 9
1110903118903	42	62-56140	10	38	91-50110 17 35 94-46129 1825.3 76-37114 27
1111003118903	22.9	86-33128	3116.3	67-21120	32 8.0 49-12114 58



STATION: SOUTH POLE LAUNCH DATE: 10 NOV 89 348 Z ECC SONDE: 4A4405
 SURFACE CONDITIONS: PRESSURE 680.0 MB, TEMPERATURE -39.0 C, HUMIDITY 21.7 %
 CAL DATA: AIR TEMP 30.0 C AT 73.6 ORD; HUM 33.0 % AT 78.3 ORD; TBOX 26.8 C AT 72.5 ORD;
 03 ORD ZERO 33.2, BKGND 33.7, CAL 69.0; 03 BKGND 0.073 MICROAMP; FLOW RATE 26.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL 03 264.; SONDE TOTAL 03 280.; C.F. .942

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	680.0	2835.	18.5	.027	45.6	.0000	-39.0	-52.9	21.7	261.5		
1	667.0	2969.	17.0	.026	40.9	.0003	-32.3	-42.5	36.2	270.4	23.0	223.
2	651.0	3141.	16.2	.025	38.7	.0006	-31.7	-38.7	50.4	273.0	23.0	223.
3	635.0	3317.	15.3	.024	36.5	.0009	-31.5	-35.0	72.6	275.1	19.1	223.
4	618.0	3509.	14.8	.024	35.3	.0012	-30.9	-33.2	81.3	278.0	12.6	234.
5	600.0	3718.	14.1	.024	33.9	.0016	-33.0	-34.8	85.5	277.9	12.0	245.
6	582.0	3933.	12.9	.022	31.1	.0019	-33.0	-33.9	92.7	280.4	12.0	208.
7	566.0	4129.	13.0	.023	31.1	.0022	-32.6	-33.5	92.9	283.1	13.4	185.
8	550.0	4330.	12.5	.023	30.1	.0025	-34.2	-37.3	74.2	283.5	9.3	203.
9	534.0	4537.	12.1	.023	29.3	.0027	-35.2	-38.3	74.4	284.7	8.3	228.
10	520.0	4721.	11.7	.022	28.4	.0030	-36.7	-40.0	72.6	285.1	10.8	241.
11	505.0	4923.	11.7	.023	28.6	.0033	-38.1	-42.1	67.3	285.7	13.1	243.
12	490.0	5130.	12.2	.025	30.0	.0035	-39.6	-44.4	61.3	286.3	12.2	256.
13	476.0	5328.	14.5	.030	35.8	.0038	-39.8	-46.1	52.0	288.5	12.2	267.
14	461.0	5546.	15.0	.032	37.5	.0042	-42.5			287.8	15.7	246.
15	449.0	5724.	14.0	.031	35.3	.0045	-43.8			288.4	19.2	247.
16	434.0	5951.	13.7	.031	34.5	.0049	-45.2			289.4	23.9	248.
17	421.0	6154.	13.1	.031	33.4	.0052	-46.6			290.1	26.5	248.
18	410.1	6327.	13.2	.032	33.7	.0054	-48.2			290.2	25.2	264.
19	398.0	6524.	11.3	.028	29.2	.0057	-49.9			290.4	26.8	274.
20	385.0	6740.	10.8	.028	28.4	.0060	-52.4			290.0	28.3	268.
21	373.0	6944.	10.4	.028	27.3	.0063	-53.9			290.6	29.3	258.
22	360.0	7171.	9.4	.026	25.1	.0066	-55.9			291.0	31.0	254.
23	350.0	7349.	10.0	.029	26.7	.0068	-57.5			291.1	28.4	266.
24	338.0	7569.	10.0	.030	26.8	.0071	-59.0			291.9	28.9	273.
25	325.0	7814.	10.5	.032	28.5	.0074	-61.1			292.3	26.6	263.
26	315.0	8007.	11.4	.036	31.2	.0076	-62.6			292.9	20.1	262.
27	305.0	8205.	15.4	.051	42.6	.0079	-64.1			293.5	19.3	263.
28	295.0	8409.	16.2	.055	45.0	.0083	-64.9			295.2	16.5	260.
29	285.0	8619.	13.0	.046	36.1	.0088	-64.9			298.1	11.3	248.
30	276.0	8815.	12.2	.044	33.8	.0091	-66.1			299.2	8.0	278.
31	265.0	9061.	12.2	.046	34.1	.0095	-66.7			301.8	6.3	294.
32	257.0	9246.	16.8	.065	47.2	.0098	-68.3			302.0	2.9	238.
33	248.0	9459.	22.0	.089	62.1	.0103	-68.6			304.7	8.5	274.
34	240.0	9656.	30.6	.128	86.2	.0109	-68.3			307.9	9.5	273.
35	230.0	9911.	33.2	.144	93.4	.0120	-68.1			312.0	6.8	259.
36	221.0	10151.	34.8	.157	98.2	.0130	-68.6			315.0	9.9	206.
37	214.0	10344.	35.6	.166	100.5	.0139	-68.6			317.9	9.7	170.
38	208.0	10514.	40.0	.192	112.8	.0147	-68.6			320.5	3.1	354.
39	200.0	10749.	43.8	.219	124.0	.0160	-69.0			323.4	3.4	201.
40	192.7	10971.	47.8	.248	134.8	.0173	-68.6			327.5	4.2	187.
41	186.0	11184.	52.4	.282	147.6	.0186	-68.1			331.5	3.0	65.
42	179.3	11404.	53.4	.298	150.6	.0201	-68.6			334.3	13.0	163.
43	172.8	11625.	54.1	.313	152.8	.0217	-69.0			337.2	4.6	169.
44	166.2	11859.	54.1	.325	151.1	.0233	-66.7			344.8	2.0	83.
45	160.1	12085.	54.0	.337	151.1	.0249	-66.7			348.5	8.4	148.
46	154.1	12317.	53.2	.345	148.4	.0265	-66.3			353.0	6.8	145.
47	148.0	12561.	52.1	.352	145.6	.0282	-66.7			356.4	5.7	134.
48	142.9	12772.	51.6	.361	145.2	.0296	-67.9			357.8	6.0	111.
49	137.5	13004.	51.3	.373	144.2	.0312	-67.5			362.5	3.8	146.

STATION: SOUTH POLE			LAUNCH DATE: 10 NOV 89				348 Z	ECC	SONDE: 4A4405			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	132.2	13241.	50.1	.379	140.6	.0327	-67.5			366.6	9.2	186.
51	127.4	13464.	48.1	.378	134.9	.0342	-66.9			371.6	12.0	179.
52	123.0	13677.	45.9	.373	128.0	.0355	-66.5			376.1	8.3	150.
53	118.8	13887.	39.5	.332	110.5	.0367	-66.9			379.1	7.7	141.
54	114.2	14125.	33.8	.296	95.1	.0379	-67.9			381.5	11.9	131.
55	109.9	14356.	36.7	.334	103.0	.0389	-66.9			387.7	16.4	138.
56	105.3	14615.	42.0	.399	117.3	.0402	-66.5			393.2	13.0	156.
57	100.9	14873.	42.1	.417	117.6	.0416	-66.3			398.4	5.8	154.
58	97.0	15113.	42.1	.434	116.4	.0429	-64.5			406.4	8.5	134.
59	93.5	15338.	48.4	.518	133.8	.0442	-64.5			410.7	14.6	125.
60	90.0	15571.	38.7	.430	107.3	.0455	-64.5			415.2	7.4	109.
61	86.4	15820.	41.5	.481	115.0	.0468	-64.5			420.0	1.4	232.
62	83.0	16066.	22.8	.275	62.7	.0479	-63.5			426.8	12.1	170.
63	79.8	16308.	20.3	.254	55.5	.0486	-62.2			434.3	18.0	162.
64	76.8	16546.	67.2	.874	182.7	.0496	-61.0			441.8	20.3	156.
65	73.6	16811.	57.6	.783	156.1	.0517	-59.9			449.4	17.7	145.
66	70.6	17072.	55.3	.783	148.7	.0536	-58.5			457.7	8.9	142.
67	67.6	17346.	54.6	.808	145.6	.0555	-56.5			467.8	15.2	158.
68	64.8	17615.	53.9	.831	142.8	.0573	-55.4			476.0	19.8	142.
69	62.1	17888.	67.7	1.091	178.5	.0592	-54.1			484.6	19.1	125.
70	59.9	18119.	49.6	.829	130.5	.0610	-53.3			491.4	11.5	120.
71	57.4	18394.	50.0	.871	130.9	.0626	-52.4			499.5	11.9	117.
72	55.0	18672.	50.0	.909	129.9	.0643	-50.7			509.5	17.8	127.
73	53.0	18914.	50.8	.958	131.0	.0658	-49.5			517.7	16.2	144.
74	51.0	19167.	59.5	1.167	152.3	.0674	-47.7			527.6	11.8	135.
75	49.0	19432.	86.7	1.769	219.6	.0695	-45.3			539.4	17.1	132.
76	47.0	19711.	113.9	2.423	286.5	.0725	-43.8			549.6	20.1	140.
77	45.1	19990.	118.9	2.636	296.8	.0762	-42.0			560.4	16.1	136.
78	43.2	20283.	119.9	2.776	296.5	.0802	-39.6			573.1	15.0	123.
79	41.5	20558.	119.7	2.885	294.4	.0840	-38.3			583.0	25.4	121.
80	39.9	20829.	114.5	2.871	280.2	.0877	-37.1			592.6	30.2	124.
81	38.3	21113.	110.6	2.887	269.6	.0913	-36.3			601.6	21.1	108.
82	37.0	21354.	107.6	2.907	258.9	.0943	-33.2			615.4	24.4	116.
83	35.8	21586.	107.6	3.005	257.1	.0971	-31.7			625.3	35.4	127.
84	34.2	21911.	107.6	3.145	254.4	.1009	-29.0			640.4	27.9	120.
85	33.2	22124.	109.3	3.291	256.9	.1034	-27.6			649.7	23.9	116.
86	32.1	22367.	110.7	3.448	258.9	.1063	-26.4			659.2	37.8	118.
87	31.0	22620.	109.3	3.525	254.1	.1093	-24.8			670.0	37.1	110.
88	30.0	22860.	111.0	3.699	255.8	.1122	-22.7			682.1	20.8	98.
89	28.9	23134.	112.1	3.879	257.1	.1154	-21.5			692.7	24.1	102.
90	27.9	23395.	112.8	4.041	257.0	.1185	-19.8			704.6	36.3	127.
91	26.9	23666.	111.4	4.142	252.6	.1218	-18.4			715.8	36.1	148.
92	25.9	23950.	109.1	4.211	246.0	.1250	-17.2			727.0	32.9	126.
93	25.0	24216.	112.6	4.502	252.3	.1281	-15.7			738.8	40.6	107.
94	24.0	24524.	156.8	6.535	349.7	.1320	-14.3			751.4	34.3	117.
95	23.0	24847.	169.7	7.380	378.4	.1374	-14.1			761.0	33.1	119.
96	22.3	25082.	166.8	7.481	371.7	.1415	-14.0			768.2	33.1	121.
97	21.8	25254.	160.9	7.380	356.8	.1444	-12.9			776.5	29.1	132.
98	21.0	25539.	154.9	7.374	344.4	.1491	-13.6			782.8	37.2	108.
99	20.5	25722.	149.4	7.287	333.3	.1520	-14.3			786.1	37.8	110.
100	19.8	25985.	150.9	7.621	336.3	.1560	-14.1			794.3	31.1	126.
101	19.0	26298.	147.9	7.783	329.5	.1609	-14.0			804.2	30.4	121.
102	18.3	26583.	142.0	7.762	316.8	.1652	-14.3			812.0	39.2	106.
103	17.8	26793.	135.4	7.604	301.9	.1683	-14.3			818.4	45.0	111.
104	17.0	27142.	126.0	7.414	281.1	.1731	-14.3			829.2	38.9	125.

STATION: SOUTH POLE			LAUNCH DATE: 10 NOV 89 348 Z					ECC SONDE: 4A4405				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	16.2	27507.	121.2	7.483	270.3	.1778	-14.3			840.7	28.9	114.
106	15.9	27649.	116.2	7.310	259.2	.1796	-14.3			845.2	30.0	99.
107	15.3	27941.	113.2	7.400	252.5	.1830	-14.3			854.6	25.6	95.
108	15.0	28091.	108.1	7.209	239.8	.1848	-12.9			864.1	22.4	98.
109	14.3	28455.	104.1	7.279	231.2	.1888	-13.2			875.0	30.7	106.
110	14.0	28616.	99.4	7.098	222.5	.1905	-15.4			872.8	25.4	129.
111	13.3	29004.	91.8	6.905	205.2	.1944	-14.8			887.6	36.2	122.
112	12.9	29235.	85.8	6.652	191.3	.1966	-14.3			897.3	47.5	113.
113	12.1	29721.	81.0	6.695	180.8	.2008	-14.3			913.8	27.0	112.
114	11.9	29847.	76.4	6.419	170.4	.2019	-14.3			918.2	17.2	109.
115	11.1	30374.	78.3	7.052	175.0	.2061	-14.8			934.6	19.1	127.
116	10.8	30581.	70.2	6.498	157.8	.2077	-16.5			935.9	19.1	127.

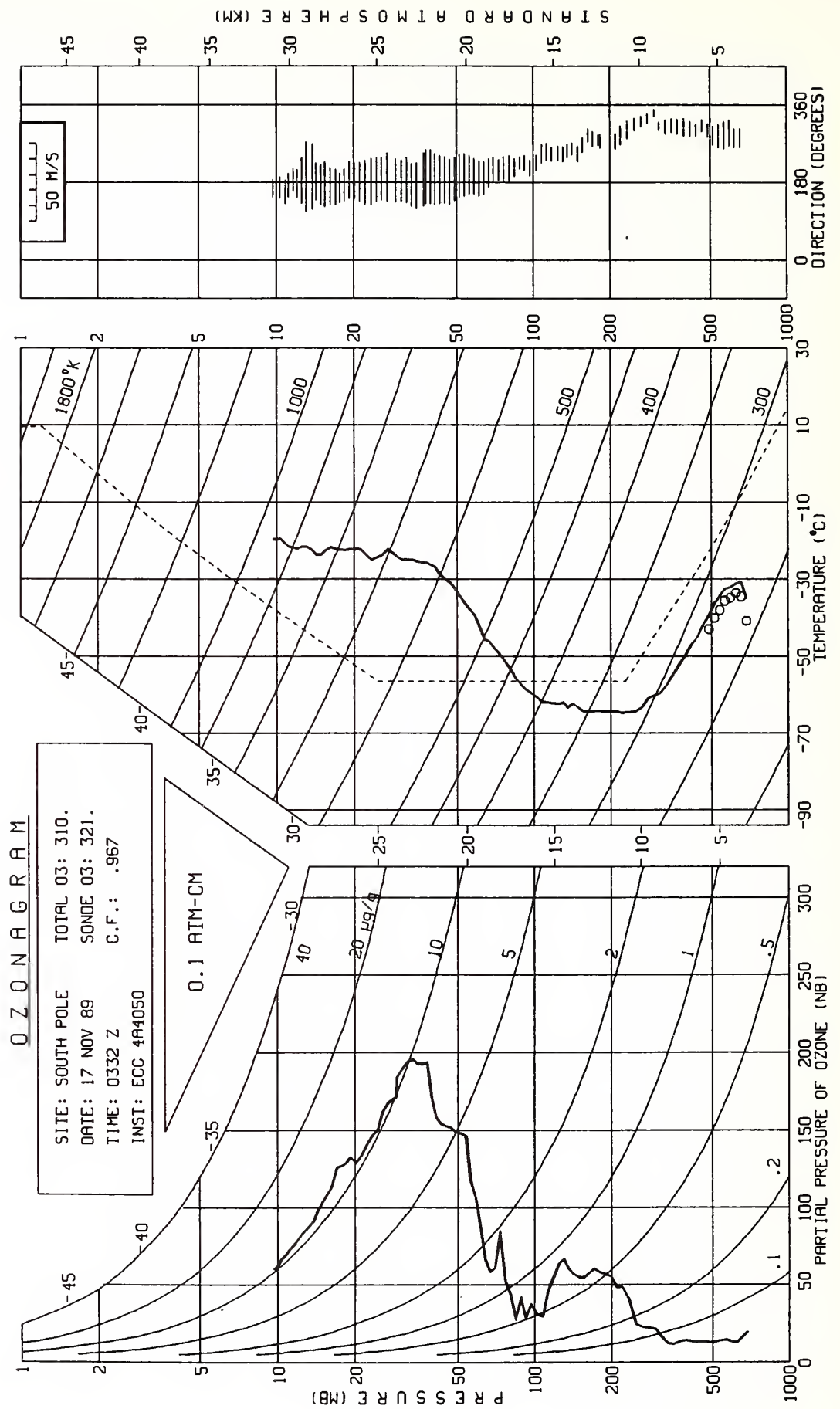
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
13.8	12.5	45.2	43.9	91.0	132.5	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110110118904	00264	99	.942	ECC	TOTAL O3 FROM SONDE DATA 280
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110210118904	680	18-39		500	12-39247 13 300 16-64262 18 200 44-69201 3
1110310118904	150	52-67138	6	100	42-66149 6 70 55-58145 10 50 73-47134 14
1110410118904	301	11-23 98	2120.0	150-14121	33 667 17-32223 23 618 15-31234 13
1110510118904	257	17-68238	3	240	31-68273 10 186 52-68 65 3 123 46-67150 8
1110610118904	114	34-68131	12	94	48-65125 15 90 39-65109 7 86 42-65232 1
1110710118904	83	23-64170	12	80	20-62162 18 77 67-61156 20 65 54-55142 20
1110810118904	62	68-54125	19	60	50-53120 12 53 51-50144 16 47114-44140 20
1110910118904	421	20-38121	25	38111-36108	2125.0 113-16107 4124.0 157-14117 34
1111010118904	23.0	170-14119	3315.0	108-13 98	2214.0 99-15129 2511.9 76-14109 17
111110118904	11.1	78-15127	1910.8	70-17127	19



STATION: SOUTH POLE LAUNCH DATE: 17 NOV 89 332 Z ECC SONDE: 4A4050
 SURFACE CONDITIONS: PRESSURE 686.1 MB, TEMPERATURE -35.2 C, HUMIDITY 55.7 %
 CAL DATA: AIR TEMP 30.0 C AT 73.6 ORD; HUM 33.0 % AT 73.8 ORD; TBOX 30.2 C AT 72.5 ORD;
 O3 ORD ZERO 35.6, BKGND 36.1, CAL 70.5; O3 BKGND 0.075 MICROAMP; FLOW RATE 25.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 310.; SONDE TOTAL O3 321.; C.F. .967

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	686.1	2835.	19.7	.029	48.0	.0000	-35.2	-41.1	55.7	265.0		
1	654.0	3172.	16.1	.025	38.4	.0007	-31.0	-34.7	71.3	273.4	12.1	283.
2	623.0	3516.	12.5	.020	29.8	.0013	-31.3	-33.8	79.8	276.9	12.1	283.
3	595.0	3841.	13.3	.022	32.1	.0017	-32.3	-35.0	77.8	279.4	16.9	295.
4	565.0	4206.	14.4	.026	34.6	.0023	-32.7	-35.8	75.0	283.1	18.1	290.
5	539.0	4537.	13.9	.026	33.7	.0028	-34.6	-38.2	70.9	284.7	15.4	288.
6	513.0	4881.	13.3	.026	32.6	.0034	-36.5	-40.3	69.6	286.3	12.4	289.
7	489.0	5211.	12.9	.026	31.7	.0039	-39.6	-43.2	69.8	286.5	8.7	301.
8	463.0	5582.	13.2	.029	33.2	.0044	-42.2			287.8	8.1	312.
9	440.0	5925.	13.2	.030	33.7	.0049	-45.2			288.3	7.8	301.
10	416.0	6298.	13.2	.032	33.9	.0055	-47.4			290.0	9.5	305.
11	393.0	6671.	14.0	.036	36.4	.0061	-50.1			291.3	11.0	308.
12	372.0	7028.	13.5	.036	35.5	.0067	-52.5			292.7	9.6	310.
13	352.0	7383.	11.7	.033	30.9	.0073	-55.2			293.7	9.1	312.
14	333.0	7735.	12.2	.037	32.6	.0078	-57.7			295.0	9.0	309.
15	313.0	8124.	17.0	.054	46.1	.0084	-59.9			297.2	5.5	310.
16	300.0	8389.	21.4	.071	58.0	.0090	-60.3			300.3	4.7	342.
17	282.0	8774.	22.2	.079	60.5	.0101	-61.1			304.4	6.2	328.
18	266.0	9135.	22.6	.085	62.2	.0111	-63.4			306.3	6.6	322.
19	250.0	9515.	24.5	.098	67.8	.0123	-64.5			310.1	8.0	315.
20	235.0	9893.	40.5	.172	112.1	.0136	-64.7			315.3	11.2	302.
21	220.0	10296.	48.6	.221	134.9	.0158	-64.9			321.0	12.7	289.
22	210.0	10580.	48.4	.231	134.1	.0176	-64.5			325.9	10.2	276.
23	200.0	10878.	55.3	.277	153.1	.0195	-64.5			330.5	11.5	282.
24	183.0	11421.	58.0	.317	160.4	.0234	-64.5			339.0	9.1	276.
25	180.0	11522.	58.1	.323	160.8	.0241	-64.3			340.9	7.1	278.
26	171.6	11814.	60.3	.352	167.1	.0263	-64.5			345.3	10.2	281.
27	163.9	12095.	57.9	.353	160.3	.0285	-64.5			349.8	8.5	289.
28	156.3	12385.	54.7	.350	151.5	.0306	-64.5			354.6	9.4	267.
29	149.1	12674.	54.9	.368	151.2	.0327	-63.5			361.1	10.5	246.
30	142.0	12974.	57.1	.402	156.4	.0348	-62.6			367.8	7.8	258.
31	135.6	13258.	61.3	.452	168.7	.0369	-63.5			371.0	9.1	253.
32	130.3	13503.	66.7	.512	182.7	.0388	-62.2			377.6	9.9	245.
33	124.9	13764.	64.2	.514	176.0	.0410	-62.6			381.5	9.2	246.
34	118.1	14110.	54.5	.462	149.5	.0438	-62.4			388.0	9.4	245.
35	112.9	14388.	45.7	.405	125.3	.0456	-62.2			393.4	11.2	251.
36	107.8	14674.	29.7	.275	81.2	.0471	-62.1			398.9	12.3	247.
37	102.5	14986.	30.9	.302	84.1	.0483	-60.8			407.1	9.9	226.
38	97.0	15330.	37.5	.387	101.5	.0497	-59.6			416.0	10.1	213.
39	92.5	15628.	28.8	.312	77.6	.0510	-58.7			423.4	9.6	226.
40	88.5	15907.	41.4	.468	110.6	.0521	-57.3			431.5	8.6	226.
41	84.6	16193.	28.5	.337	75.7	.0535	-55.7			440.4	12.1	214.
42	80.6	16503.	44.6	.553	116.9	.0547	-53.1			451.8	16.7	213.
43	76.9	16807.	52.1	.678	135.7	.0564	-51.4			461.4	16.5	211.
44	73.3	17120.	82.6	1.127	213.1	.0587	-49.5			471.9	13.7	209.
45	70.0	17422.	61.0	.872	156.4	.0615	-48.0			481.3	15.7	210.
46	67.0	17712.	58.8	.877	149.6	.0636	-46.3			491.1	18.3	201.
47	64.2	17996.	66.4	1.035	168.6	.0656	-45.9			498.1	21.4	190.
48	61.4	18295.	87.8	1.430	220.0	.0681	-42.6			511.6	23.1	189.
49	58.8	18589.	106.2	1.806	262.5	.0712	-39.6			524.7	23.3	194.

STATION: SOUTH POLE LAUNCH DATE: 17 NOV 89 332 Z ECC SONDE: 4A4050

TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	56.1	18912.	117.6	2.096	288.6	.0752	-38.0			535.5	25.4	197.
51	53.8	19201.	146.1	2.716	356.0	.0792	-36.3			546.0	27.8	197.
52	51.3	19533.	147.9	2.884	357.7	.0847	-34.4			557.8	27.8	196.
53	49.1	19840.	148.5	3.025	356.7	.0898	-32.7			568.9	28.0	187.
54	47.0	20149.	151.6	3.226	361.7	.0949	-31.1			579.8	29.2	182.
55	44.9	20474.	152.4	3.394	361.8	.1004	-30.1			590.0	30.1	186.
56	43.0	20782.	153.9	3.580	364.2	.1056	-29.0			599.9	31.2	186.
57	41.2	21089.	158.2	3.840	371.1	.1108	-27.1			612.2	33.1	188.
58	39.5	21394.	171.2	4.333	400.6	.1162	-26.5			620.9	34.8	193.
59	38.0	21674.	193.7	5.097	452.3	.1216	-25.9			629.5	35.1	193.
60	37.2	21828.	192.7	5.181	449.8	.1247	-25.9			633.3	34.3	186.
61	34.9	22290.	192.7	5.522	449.3	.1344	-25.6			645.7	29.4	172.
62	33.4	22609.	195.3	5.848	454.7	.1410	-25.1			655.2	27.7	174.
63	32.0	22920.	194.6	6.080	452.8	.1476	-25.1			663.3	29.2	185.
64	30.5	23269.	189.5	6.214	441.0	.1548	-25.1			672.4	27.1	184.
65	29.0	23636.	183.8	6.339	426.5	.1623	-24.3			684.4	23.6	176.
66	28.9	23661.	171.4	5.932	397.3	.1628	-24.0			685.8	27.4	185.
67	26.9	24186.	167.9	6.240	386.6	.1724	-22.4			704.5	31.2	192.
68	25.6	24549.	161.9	6.323	375.3	.1789	-24.0			710.0	27.5	188.
69	24.5	24869.	150.4	6.137	349.2	.1844	-24.5			717.4	28.8	186.
70	23.3	25234.	146.5	6.287	341.0	.1903	-25.1			726.2	30.3	181.
71	22.1	25620.	139.9	6.331	323.9	.1963	-23.8			741.2	28.1	180.
72	21.1	25959.	133.7	6.338	308.0	.2013	-22.4			755.1	25.1	181.
73	20.1	26315.	128.8	6.408	296.5	.2064	-22.4			765.6	23.3	183.
74	19.1	26690.	132.3	6.926	304.6	.2116	-22.4			776.9	24.4	185.
75	18.3	27004.	128.6	7.028	296.4	.2160	-22.7			785.6	20.8	174.
76	17.6	27290.	126.8	7.203	292.1	.2199	-22.6			794.8	18.9	167.
77	17.0	27545.	125.9	7.406	289.9	.2234	-22.4			803.1	22.6	169.
78	16.2	27899.	113.4	7.002	260.6	.2280	-21.9			816.0	24.4	171.
79	15.4	28271.	107.3	6.970	247.3	.2325	-22.7			825.3	29.0	175.
80	14.9	28513.	103.4	6.937	239.2	.2352	-23.8			829.6	25.9	175.
81	14.2	28865.	96.8	6.816	224.0	.2390	-23.8			841.1	23.9	182.
82	13.8	29074.	91.5	6.629	211.0	.2412	-22.7			851.6	42.2	193.
83	13.0	29513.	86.4	6.650	198.6	.2454	-21.8			869.4	45.0	193.
84	12.5	29801.	83.4	6.668	191.4	.2480	-21.8			879.2	29.4	184.
85	12.0	30102.	79.7	6.640	183.3	.2507	-22.3			887.7	18.2	177.
86	11.6	30351.	76.2	6.569	175.3	.2527	-22.0			897.3	14.6	186.
87	11.1	30675.	73.0	6.577	167.7	.2553	-21.8			909.6	15.2	173.
88	10.8	30877.	70.0	6.482	160.3	.2569	-21.1			919.2	15.5	158.
89	10.3	31228.	66.2	6.431	150.8	.2594	-19.6			937.2	13.7	168.
90	10.0	31448.	62.4	6.237	142.1	.2610	-19.8			944.6	11.8	166.
91	9.7	31712.	60.2	6.243	137.2	.2627	-19.8			954.3	11.8	166.

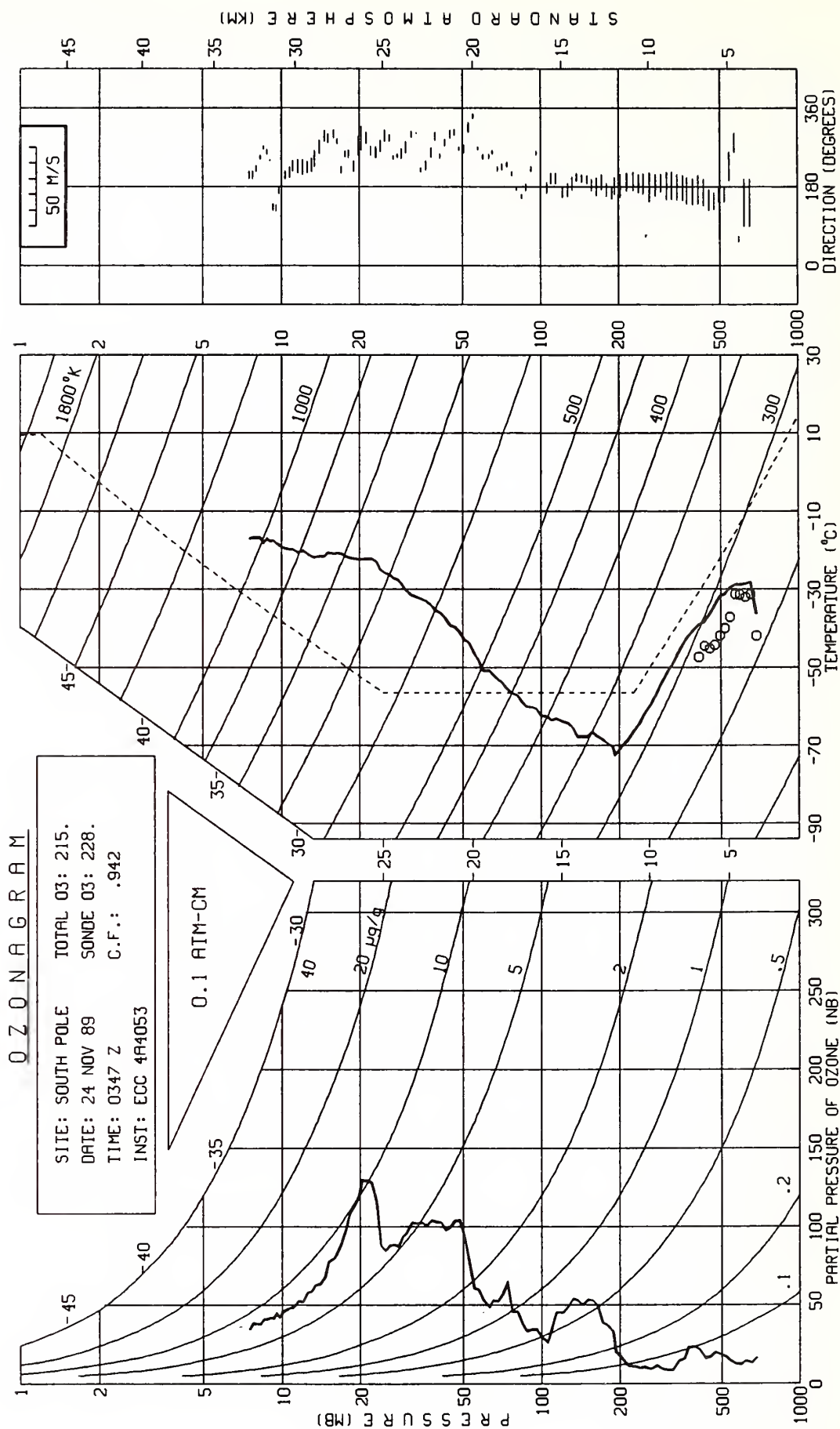
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
14.5	15.8	52.5	47.7	153.8	146.1	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110117118904	00310	99	.967	ECC	TOTAL O3 FROM SONDE DATA 321
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	P3TTTDDDDFFFP P3TTTDDDDFFFP
1110217118904	686	20-35		500	13-38295 10 300 21-60342 5 200 55-65282 12
1110317118904	150	55-64249	10	100	34-60220 10 70 61-48210 16 50148-33191 28
1110417118904		30188-25181	2620.0	129-22183	2310.0 62-20166 12 654 16-31283 12
1110517118904	623	12-31283	12	565	14-33290 18 333 12-58309 9 250 24-65315 8
1110617118904	235	41-65302	11	130	67-62245 10 118 55-62245 9 108 30-62247 12
1110717118904	93	29-59226	10	89	41-57226 9 85 29-56214 12 77 52-51211 17
1110817118904	73	83-50209	14	64	66-46190 21 59106-40194 23 56118-38197 25
1110917118904		54146-36197	28	41158-27188	33 38194-26193 3529.0184-24176 24
1111017118904	28.9	171-24185	2726.9	168-22192	3123.3146-25181 3017.0126-22169 23
1111117118904	14.2	97-24182	24	9.7	60-20166 12



STATION: SOUTH POLE LAUNCH DATE: 24 NOV 89 347 Z ECC SONDE: 4A4053
 SURFACE CONDITIONS: PRESSURE 687.1 MB, TEMPERATURE -36.5 C, HUMIDITY 57.3 %
 CAL DATA: AIR TEMP 30.0 C AT 73.6 ORD; HUM 33.0 % AT 77.5 ORD; TBOX 27.0 C AT 72.1 ORD;
 O3 ORD ZERO 32.0, BKGND 32.6, CAL 68.9; O3 BKGND 0.085 MICROAMP; FLOW RATE 27.2 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 215.; SONDE TOTAL O3 228.; C.F. .942

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	687.1	2835.	16.5	.024	40.2	.0000	-36.5	-42.1	57.3	263.4		
1	653.0	3194.	13.0	.020	30.6	.0006	-28.4	-31.5	75.6	276.5	30.4	143.
2	623.0	3531.	14.5	.023	34.2	.0011	-28.9	-32.2	74.1	279.6	30.4	143.
3	593.0	3884.	12.3	.021	29.2	.0017	-29.0	-31.6	79.8	283.4	3.7	60.
4	569.0	4179.	12.4	.022	29.4	.0021	-29.0	-31.5	80.5	286.8	12.3	281.
5	543.0	4513.	14.3	.026	33.9	.0025	-29.8	-37.4	48.1	289.7	18.4	227.
6	520.0	4821.	17.0	.033	40.6	.0030	-31.4	-40.2	42.1	291.4	9.6	162.
7	496.0	5155.	18.5	.037	44.2	.0037	-31.9	-42.1	36.2	294.8	9.9	163.
8	473.0	5489.	19.8	.042	47.9	.0044	-34.3	-44.5	35.2	295.8	10.7	147.
9	453.0	5790.	17.2	.038	41.8	.0050	-36.5	-45.4	40.1	296.7	13.2	149.
10	432.0	6117.	16.3	.038	40.0	.0056	-38.6	-44.8	52.6	298.2	17.2	167.
11	411.0	6459.	21.7	.053	53.5	.0063	-39.2	-47.6	41.2	301.6	18.3	173.
12	392.0	6783.	23.5	.060	58.2	.0072	-40.7			303.8	16.9	168.
13	372.0	7138.	23.1	.062	57.7	.0081	-42.4			306.1	17.0	171.
14	358.0	7396.	15.8	.044	40.0	.0088	-44.0			307.3	16.0	177.
15	340.0	7741.	14.5	.043	36.9	.0094	-46.6			308.4	16.3	179.
16	323.0	8079.	8.7	.027	22.3	.0099	-49.5			308.9	17.4	182.
17	309.0	8368.	8.7	.028	22.6	.0102	-51.3			310.3	17.6	182.
18	293.0	8711.	9.1	.031	24.2	.0106	-54.1			311.1	11.3	189.
19	280.0	9001.	11.4	.041	30.5	.0109	-57.0			311.0	13.4	183.
20	265.0	9347.	9.1	.034	24.8	.0114	-59.9			311.7	18.8	179.
21	250.0	9709.	10.5	.042	28.6	.0118	-62.4			313.2	13.4	186.
22	240.0	9959.	10.0	.042	27.8	.0121	-64.7			313.4	11.9	187.
23	228.0	10271.	10.8	.048	30.4	.0126	-66.7			315.0	11.7	192.
24	216.0	10596.	11.3	.052	31.9	.0130	-69.0			316.4	11.5	191.
25	204.0	10936.	16.4	.080	46.9	.0136	-70.7			318.8	15.1	182.
26	193.0	11264.	20.3	.105	58.3	.0143	-72.6			320.9	10.7	181.
27	189.0	11387.	33.1	.175	94.2	.0147	-70.5			326.2	7.7	166.
28	179.5	11694.	37.2	.207	105.6	.0161	-69.6			332.5	8.3	173.
29	172.0	11949.	38.8	.226	109.6	.0174	-68.6			338.3	9.7	190.
30	164.6	12213.	49.5	.301	139.3	.0188	-67.9			343.7	11.8	180.
31	157.3	12487.	53.2	.338	148.9	.0206	-66.7			350.3	7.3	184.
32	150.8	12741.	53.4	.354	150.3	.0223	-67.9			352.4	5.3	197.
33	144.0	13018.	50.2	.349	141.3	.0242	-67.9			357.1	4.5	199.
34	137.9	13279.	53.1	.385	149.5	.0259	-67.9			361.5	4.9	201.
35	132.3	13529.	54.1	.409	150.3	.0277	-65.5			370.2	8.4	187.
36	126.9	13783.	49.3	.388	136.4	.0294	-64.5			376.4	8.4	173.
37	121.5	14049.	45.3	.373	125.2	.0311	-64.1			381.8	6.2	166.
38	114.0	14440.	45.5	.399	125.3	.0333	-63.4			390.2	6.7	199.
39	109.3	14699.	34.7	.317	95.6	.0347	-63.7			394.2	6.7	199.
40	105.5	14916.	26.4	.250	72.5	.0356	-62.8			400.0	7.0	177.
41	100.0	15246.	30.0	.300	82.1	.0368	-62.6			406.5	4.1	184.
42	95.9	15506.	34.6	.361	94.1	.0378	-60.8			415.0	2.7	257.
43	92.0	15764.	34.5	.375	93.7	.0389	-60.4			420.6	3.1	221.
44	88.1	16034.	33.6	.382	91.3	.0401	-60.3			426.2	4.7	179.
45	84.5	16295.	38.4	.454	103.4	.0413	-59.0			433.8	2.9	159.
46	81.0	16561.	46.0	.568	122.9	.0426	-57.3			442.5	1.2	174.
47	77.5	16841.	45.9	.592	122.6	.0442	-56.8			449.2	2.7	210.
48	74.2	17117.	64.4	.867	170.8	.0459	-55.7			457.2	3.3	231.
49	71.2	17381.	57.1	.802	150.5	.0479	-54.1			466.1	4.1	226.

STATION: SOUTH POLE			LAUNCH DATE: 24 NOV 89				347 Z	ECC SONDE: 4A4053					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	68.3	17648.	52.3	.766	137.3	.0498	-53.3			473.3	2.8	221.	
51	65.3	17939.	53.1	.812	138.3	.0516	-51.8			482.8	2.4	259.	
52	63.2	18151.	48.8	.772	126.9	.0529	-51.0			489.0	2.9	249.	
53	60.0	18489.	53.2	.887	138.3	.0550	-51.0			496.3	2.9	249.	
54	57.4	18779.	60.0	1.046	154.1	.0569	-48.3			508.7	2.0	268.	
55	55.1	19050.	60.7	1.101	154.5	.0588	-46.4			519.0	3.0	341.	
56	52.9	19322.	76.8	1.452	193.5	.0609	-43.9			531.0	6.0	316.	
57	50.8	19594.	92.4	1.820	231.8	.0635	-43.1			539.1	5.1	267.	
58	48.5	19908.	104.3	2.151	259.6	.0669	-41.1			550.9	2.3	267.	
59	46.6	20180.	103.9	2.230	257.3	.0702	-39.9			560.1	3.4	305.	
60	44.7	20465.	100.0	2.237	247.1	.0736	-39.5			567.8	5.1	301.	
61	42.9	20747.	97.8	2.280	239.7	.0768	-37.6			579.2	4.4	281.	
62	41.0	21061.	102.7	2.505	250.4	.0803	-36.3			590.0	2.9	250.	
63	39.2	21373.	103.1	2.630	250.6	.0839	-35.6			599.3	4.7	295.	
64	37.7	21645.	104.1	2.762	251.6	.0871	-34.3			609.4	6.0	258.	
65	36.0	21968.	100.6	2.796	242.2	.0908	-33.2			620.3	5.8	229.	
66	34.5	22268.	102.6	2.974	246.3	.0942	-32.7			629.2	2.7	218.	
67	33.0	22581.	101.9	3.087	244.1	.0977	-32.3			638.3	.5	303.	
68	31.6	22887.	102.5	3.244	245.2	.1012	-31.7			648.0	4.0	300.	
69	30.2	23208.	96.4	3.192	229.5	.1048	-30.6			659.3	7.5	271.	
70	29.0	23497.	93.1	3.210	220.2	.1078	-29.0			671.3	6.2	255.	
71	28.0	23749.	87.3	3.116	205.3	.1104	-27.7			681.8	2.2	250.	
72	27.0	24011.	88.3	3.270	207.4	.1129	-27.4			689.6	2.2	247.	
73	26.0	24283.	88.1	3.389	206.4	.1155	-26.5			699.7	4.1	292.	
74	25.0	24566.	84.6	3.385	197.9	.1181	-26.1			708.7	7.2	297.	
75	24.0	24862.	87.6	3.651	204.0	.1209	-25.2			719.7	7.5	273.	
76	23.1	25141.	115.6	5.005	267.0	.1237	-23.1			733.8	7.1	259.	
77	22.1	25466.	128.2	5.799	295.0	.1279	-22.4			745.1	5.8	262.	
78	21.2	25771.	129.1	6.090	297.4	.1321	-22.4			754.0	7.7	292.	
79	20.3	26089.	129.7	6.387	298.7	.1364	-22.6			763.0	15.6	291.	
80	19.8	26272.	119.8	6.049	275.9	.1389	-22.6			768.5	11.6	273.	
81	19.0	26575.	113.5	5.976	261.4	.1427	-22.4			778.0	6.4	227.	
82	18.2	26891.	107.9	5.928	248.1	.1465	-22.2			788.5	5.0	255.	
83	17.6	27138.	97.9	5.563	224.8	.1493	-21.8			797.3	3.7	255.	
84	17.0	27394.	90.3	5.310	206.7	.1519	-21.1			807.4	3.9	219.	
85	16.4	27659.	84.0	5.120	192.2	.1544	-21.0			816.2	3.2	284.	
86	15.9	27888.	80.1	5.038	183.5	.1564	-21.1			823.0	5.5	301.	
87	15.1	28269.	77.8	5.155	178.2	.1596	-20.8			836.1	5.7	291.	
88	14.6	28517.	67.6	4.628	155.1	.1616	-21.8			841.1	6.9	296.	
89	14.0	28826.	63.5	4.537	145.8	.1638	-21.8			851.2	8.5	270.	
90	13.4	29149.	62.9	4.691	144.5	.1660	-22.0			861.0	10.9	244.	
91	13.0	29372.	58.8	4.523	135.2	.1674	-21.9			869.0	8.7	231.	
92	12.5	29661.	58.1	4.651	133.1	.1692	-21.1			881.6	8.1	225.	
93	12.0	29963.	52.1	4.343	119.0	.1710	-20.3			894.8	9.3	225.	
94	11.5	30278.	52.6	4.572	120.3	.1728	-20.8			903.8	8.8	227.	
95	11.0	30607.	48.5	4.412	110.6	.1746	-20.0			918.3	6.9	228.	
96	10.7	30812.	48.4	4.527	110.5	.1756	-20.0			925.5	6.8	213.	
97	10.3	31094.	47.0	4.565	107.1	.1771	-19.8			936.7	5.1	207.	
98	10.0	31314.	45.1	4.514	102.8	.1782	-19.5			945.6	5.2	191.	
99	9.8	31495.	42.2	4.325	95.8	.1790	-18.9			954.2	4.7	172.	
100	9.5	31696.	44.9	4.722	101.7	.1799	-18.4			963.7	4.4	131.	
101	9.3	31895.	41.5	4.482	93.7	.1808	-17.7			973.6	4.0	133.	
102	9.0	32100.	41.9	4.659	94.8	.1817	-18.0			980.2	.7	240.	
103	8.8	32302.	41.2	4.701	92.9	.1826	-17.2			991.0	3.2	260.	
104	8.5	32528.	41.0	4.822	92.9	.1836	-18.4			994.8	2.5	270.	

STATION: SOUTH POLE			LAUNCH DATE: 24 NOV 89 347 Z					ECC SONDE: 4A4053				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOT	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	8.3	32751.	37.9	4.592	85.4	.1845	-17.0			1008.7	2.6	247.
106	8.0	32982.	38.1	4.759	85.8	.1854	-17.0			1017.6	4.0	222.
107	7.8	33210.	38.5	4.967	86.8	.1863	-17.0			1026.5	4.9	207.
108	7.5	33466.	34.6	4.611	77.9	.1873	-17.2			1035.9	4.9	207.

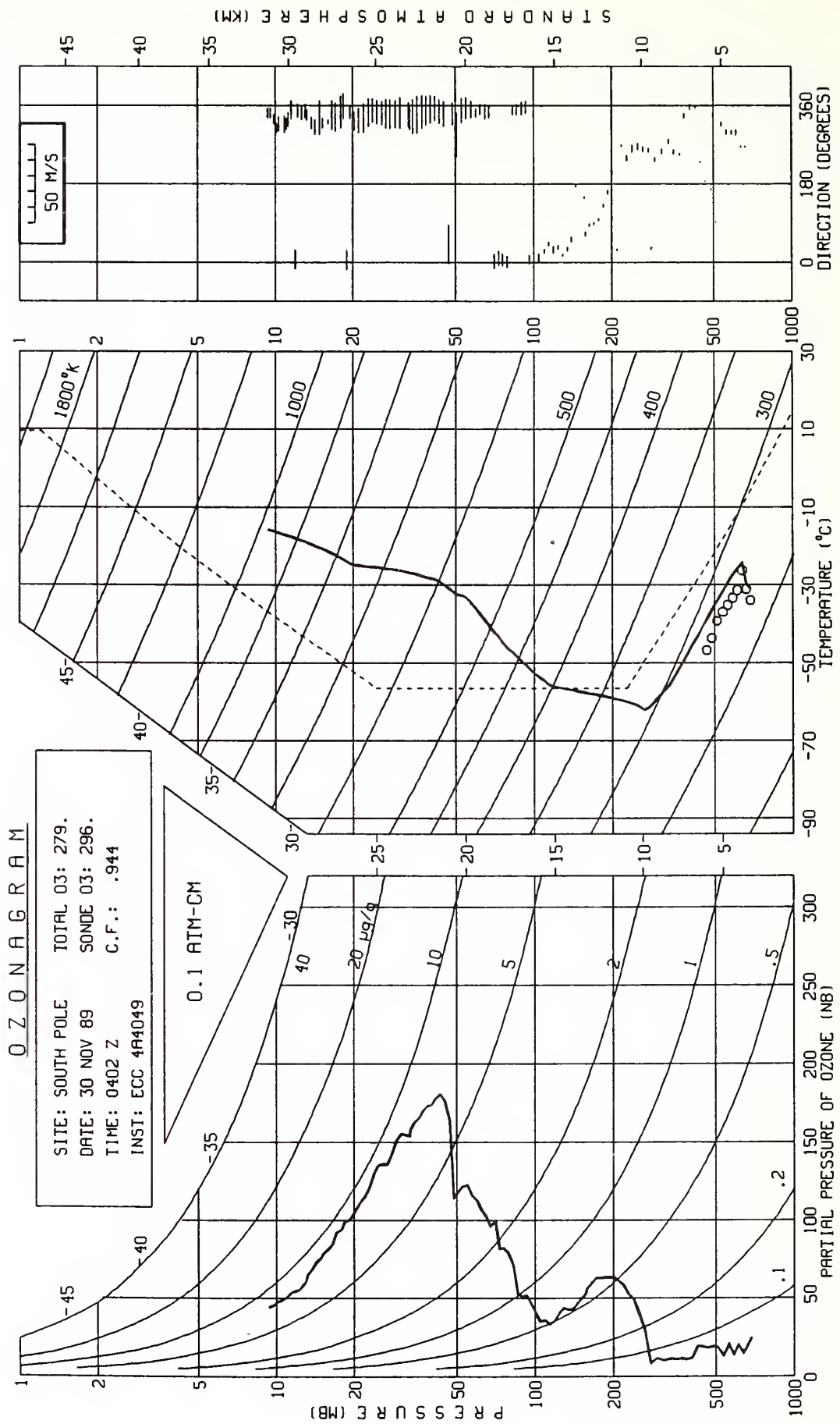
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
14.2	15.1	33.2	42.8	89.1	101.2	52.2	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110124118904	00215	99	.942	ECC	TOTAL O3 FROM SONDE DATA 228
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110224118904	687	16-37	500	18-32163	10 300 9-53186 14 200 18-71182 14
1110324118904	150	53-68197	5	100 30-63184	4 70 55-54224 4 50 97-42267 4
1110424118904	30	96-30268	720.0	124-23280	1310.0 45-20191 5 653 13-28143 30
1110524118904	432	16-39167	17	372 23-42171	17 240 10-65187 12 193 20-73181 11
1110624118904	189	33-71166	8	157 53-67184	7 132 54-66187 8 114 46-63199 7
1110724118904	106	26-63177	7	78 46-57210	3 74 64-56231 3 60 53-51249 3
1110824118904	55	61-46341	3	49104-41267	2 43 98-38281 4 38104-34258 6
1110924118904	28.0	87-28250	224.0	88-25273	823.1116-23259 722.1128-22262 6
1111024118904	14.6	68-22296	7	7.5 35-17207	5



STATION: SOUTH POLE LAUNCH DATE: 30 NOV 89 402 Z ECC SONDE: 4A4049
 SURFACE CONDITIONS: PRESSURE 686.4 MB, TEMPERATURE -31.3 C, HUMIDITY 76.6 %
 CAL DATA: AIR TEMP 30.0 C AT 73.0 ORD; HUM 33.0 % AT 77.5 ORD; TBOX 26.0 C AT 71.9 ORD;
 O3 ORD ZERO 34.5, BKGND 35.0, CAL 70.2; O3 BKGND 0.074 MICROAMP; FLOW RATE 26.0 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 279.; SONDE TOTAL O3 296.; C.F. .944

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	686.4	2835.	24.9	.036	59.6	.0000	-31.3	-34.2	76.6	269.3		
1	661.0	3103.	19.5	.030	46.4	.0007	-30.0	-31.3	89.6	273.7	.1	266.
2	638.0	3358.	14.8	.023	34.5	.0012	-24.5	-26.5	84.1	282.8	.1	266.
3	611.0	3672.	20.1	.033	47.0	.0018	-26.1	-31.6	60.9	284.4	3.6	299.
4	586.0	3974.	14.0	.024	33.0	.0024	-27.6	-33.6	57.4	286.1	2.0	299.
5	561.0	4286.	20.6	.037	48.9	.0029	-29.7	-35.4	58.9	287.1	3.2	300.
6	538.0	4583.	13.2	.025	31.5	.0035	-31.9	-37.2	59.9	288.0	2.5	318.
7	511.0	4945.	18.7	.037	45.3	.0041	-34.5	-39.5	61.6	289.1	.5	92.
8	489.0	5251.	19.1	.039	46.6	.0047	-36.5	-43.9	47.1	290.4	.9	167.
9	466.0	5583.	18.3	.039	45.1	.0055	-39.3	-47.0	44.2	290.9	.4	186.
10	445.0	5898.	19.1	.043	47.7	.0061	-41.7			291.7	.7	231.
11	426.0	6192.	19.4	.046	49.1	.0068	-43.9			292.6	1.1	357.
12	406.0	6513.	11.8	.029	30.1	.0074	-46.2			293.6	3.6	358.
13	385.0	6864.	11.0	.028	28.3	.0079	-49.0			294.5	2.7	337.
14	369.0	7142.	11.4	.031	29.6	.0083	-51.2			295.2	1.6	248.
15	351.0	7465.	10.9	.031	28.6	.0087	-53.6			296.1	2.7	254.
16	335.0	7764.	11.3	.034	30.0	.0091	-55.8			297.1	2.9	278.
17	314.0	8174.	10.1	.032	27.0	.0097	-57.9			299.7	3.3	255.
18	296.0	8544.	11.7	.040	31.7	.0102	-59.8			302.2	3.0	236.
19	280.0	8890.	8.8	.031	24.1	.0107	-61.6			304.3	2.4	258.
20	266.0	9207.	29.4	.110	80.5	.0112	-62.3			307.8	3.0	260.
21	253.0	9518.	40.0	.158	109.1	.0125	-61.2			313.8	4.1	266.
22	241.0	9820.	49.2	.204	133.6	.0141	-60.7			319.0	4.3	261.
23	230.0	10110.	52.6	.229	142.6	.0159	-60.3			323.9	3.5	240.
24	219.0	10416.	58.8	.269	159.4	.0180	-59.9			329.0	.8	269.
25	210.0	10679.	60.9	.290	164.8	.0200	-59.6			333.5	1.0	29.
26	201.0	10953.	63.5	.316	171.5	.0221	-59.3			338.2	1.2	205.
27	193.1	11204.	63.4	.329	171.2	.0241	-59.1			342.5	2.3	161.
28	185.9	11442.	63.4	.341	171.0	.0259	-58.8			346.6	1.9	130.
29	178.5	11698.	63.1	.353	169.7	.0280	-58.6			351.1	1.4	98.
30	171.1	11964.	63.0	.368	169.2	.0301	-58.3			355.8	1.5	89.
31	164.3	12219.	59.5	.362	159.6	.0320	-58.1			360.3	1.7	85.
32	158.0	12466.	56.2	.356	150.7	.0338	-57.9			364.7	3.0	65.
33	156.6	12522.	53.2	.339	142.6	.0342	-57.8			365.7	.9	149.
34	145.2	12999.	46.4	.319	124.0	.0373	-57.4			374.5	1.2	176.
35	140.0	13229.	43.0	.307	115.0	.0386	-57.2			378.8	3.2	52.
36	134.9	13464.	42.8	.317	114.3	.0399	-57.0			383.2	2.4	30.
37	129.5	13723.	43.8	.338	116.9	.0412	-56.8			388.1	1.0	16.
38	124.1	13993.	41.0	.330	109.2	.0427	-56.5			393.2	2.6	34.
39	119.3	14244.	35.9	.301	95.5	.0439	-56.3			398.1	4.0	29.
40	114.4	14510.	33.7	.295	89.5	.0451	-55.8			403.8	2.5	42.
41	109.5	14790.	35.9	.328	94.9	.0463	-54.8			410.7	2.8	26.
42	104.6	15083.	35.5	.339	93.5	.0475	-53.8			418.0	5.1	10.
43	99.9	15379.	42.2	.422	110.7	.0489	-52.9			425.4	5.4	11.
44	96.4	15610.	47.0	.488	122.7	.0501	-51.8			431.9	6.1	6.
45	93.1	15836.	52.0	.559	135.0	.0514	-50.8			438.3	7.5	357.
46	89.9	16064.	50.9	.566	131.5	.0528	-49.8			444.6	8.0	354.
47	86.1	16348.	52.8	.613	135.8	.0546	-48.6			452.6	6.9	352.
48	82.8	16605.	71.1	.859	181.9	.0563	-47.5			459.7	6.2	351.
49	79.1	16908.	79.0	.999	201.3	.0589	-46.4			468.2	7.7	1.

STATION: SOUTH POLE			LAUNCH DATE: 30 NOV 89			402 Z	ECC SONDE: 4A4049					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	76.0	17175.	82.2	1.082	208.1	.0614	-45.0			476.5	8.2	6.
51	73.2	17426.	81.6	1.114	205.3	.0638	-43.6			484.5	9.3	9.
52	70.4	17689.	99.6	1.415	249.1	.0665	-42.3			492.8	9.5	2.
53	67.5	17975.	96.0	1.423	238.5	.0697	-40.7			502.2	8.5	347.
54	64.9	18243.	102.6	1.581	253.3	.0727	-39.2			511.2	9.9	347.
55	62.3	18524.	106.5	1.709	261.1	.0761	-37.7			520.5	6.5	352.
56	60.0	18784.	112.5	1.876	274.4	.0793	-36.3			529.1	5.7	344.
57	57.5	19080.	115.6	2.010	280.1	.0831	-34.9			538.8	11.0	351.
58	55.0	19392.	122.5	2.228	295.2	.0872	-33.5			549.0	13.6	355.
59	52.7	19692.	121.7	2.309	292.4	.0913	-32.8			557.2	16.1	349.
60	50.5	19992.	117.5	2.328	282.1	.0954	-32.6			564.7	27.9	293.
61	48.8	20234.	114.3	2.343	273.6	.0985	-31.9			571.7	14.3	341.
62	47.0	20500.	163.7	3.483	390.4	.1022	-31.1			579.9	24.9	41.
63	45.0	20809.	176.4	3.919	418.9	.1079	-30.1			589.4	16.3	342.
64	43.2	21100.	180.6	4.181	427.6	.1136	-29.3			598.4	15.7	347.
65	41.5	21387.	177.9	4.286	420.3	.1192	-28.8			606.5	15.9	354.
66	40.0	21651.	173.8	4.345	410.3	.1243	-28.5			613.7	17.7	352.
67	38.4	21943.	173.0	4.504	407.7	.1299	-28.2			621.8	18.9	349.
68	37.0	22210.	170.1	4.598	400.5	.1349	-27.9			629.1	20.8	346.
69	35.4	22528.	164.8	4.657	387.5	.1407	-27.5			638.0	23.9	340.
70	34.0	22818.	162.0	4.765	380.4	.1459	-27.2			646.2	21.8	335.
71	33.0	23033.	157.9	4.784	370.2	.1497	-27.0			652.3	14.0	331.
72	32.8	23077.	153.8	4.689	360.8	.1504	-27.0			653.5	15.2	340.
73	30.4	23626.	155.1	5.103	363.1	.1596	-26.5			669.3	19.9	344.
74	29.2	23917.	151.1	5.173	353.4	.1645	-26.3			677.5	17.3	341.
75	27.9	24246.	142.2	5.096	332.2	.1698	-26.1			686.9	18.7	341.
76	26.9	24510.	135.7	5.044	316.9	.1737	-26.0			694.4	18.7	342.
77	25.9	24785.	135.8	5.242	316.9	.1778	-25.9			702.4	15.1	343.
78	24.8	25099.	135.2	5.452	315.4	.1824	-25.7			711.5	14.9	346.
79	23.8	25397.	129.3	5.435	301.7	.1867	-25.6			720.3	15.5	349.
80	23.0	25645.	121.5	5.283	283.3	.1901	-25.5			727.7	18.1	344.
81	22.0	25968.	114.9	5.223	267.8	.1943	-25.4			737.4	18.3	332.
82	21.0	26306.	110.7	5.274	258.0	.1984	-25.2			747.6	15.9	326.
83	20.2	26588.	106.0	5.249	246.9	.2017	-25.1			756.3	12.0	325.
84	19.5	26844.	101.9	5.224	236.8	.2047	-24.7			765.4	8.7	346.
85	18.9	27072.	99.6	5.270	231.0	.2071	-24.2			773.8	12.4	5.
86	18.3	27307.	98.9	5.407	229.0	.2096	-23.7			782.6	16.0	359.
87	17.9	27469.	93.9	5.248	217.0	.2113	-23.3			788.6	20.7	345.
88	17.1	27804.	92.1	5.389	212.4	.2147	-22.6			801.1	18.2	334.
89	16.5	28066.	84.8	5.138	195.0	.2172	-22.1			811.0	18.5	339.
90	16.0	28293.	82.0	5.128	188.4	.2193	-21.7			819.6	2.9	323.
91	15.2	28671.	78.9	5.193	180.7	.2225	-21.0			833.9	6.8	320.
92	14.8	28868.	75.7	5.116	173.1	.2242	-20.7			841.4	21.9	333.
93	14.2	29175.	72.4	5.100	165.2	.2266	-20.2			853.2	9.6	311.
94	13.8	29386.	68.9	4.994	157.2	.2282	-19.8			861.3	7.6	321.
95	13.2	29717.	65.1	4.928	148.0	.2306	-19.3			874.1	7.1	339.
96	13.0	29830.	61.1	4.699	138.7	.2313	-19.1			878.5	8.6	348.
97	12.6	30063.	57.9	4.593	131.4	.2328	-18.8			887.5	8.9	344.
98	12.2	30303.	55.1	4.519	125.0	.2343	-18.5			897.0	8.4	349.
99	11.9	30489.	54.9	4.610	124.2	.2353	-18.2			904.3	12.3	6.
100	11.5	30745.	54.2	4.712	122.5	.2368	-17.9			914.4	11.8	351.
101	11.2	30942.	52.5	4.687	118.7	.2379	-17.6			922.2	9.2	328.
102	11.0	31077.	50.9	4.626	115.0	.2387	-17.4			927.6	7.4	318.
103	10.8	31215.	50.2	4.651	113.4	.2394	-17.3			933.1	10.7	318.
104	10.3	31570.	48.3	4.693	108.8	.2412	-16.8			947.4	9.2	318.

STATION: SOUTH POLE			LAUNCH DATE: 30 NOV 89 402 Z				ECC SONDE: 4A4049					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	10.1	31718.	47.9	4.739	107.7	.2420	-16.7			953.3	5.8	308.
106	9.8	31921.	46.0	4.677	103.5	.2430	-16.4			961.6	5.9	330.
107	9.5	32146.	44.9	4.711	101.0	.2440	-16.2			970.8	6.6	343.
108	9.4	32298.	44.4	4.746	99.6	.2447	-16.0			977.0	6.6	343.

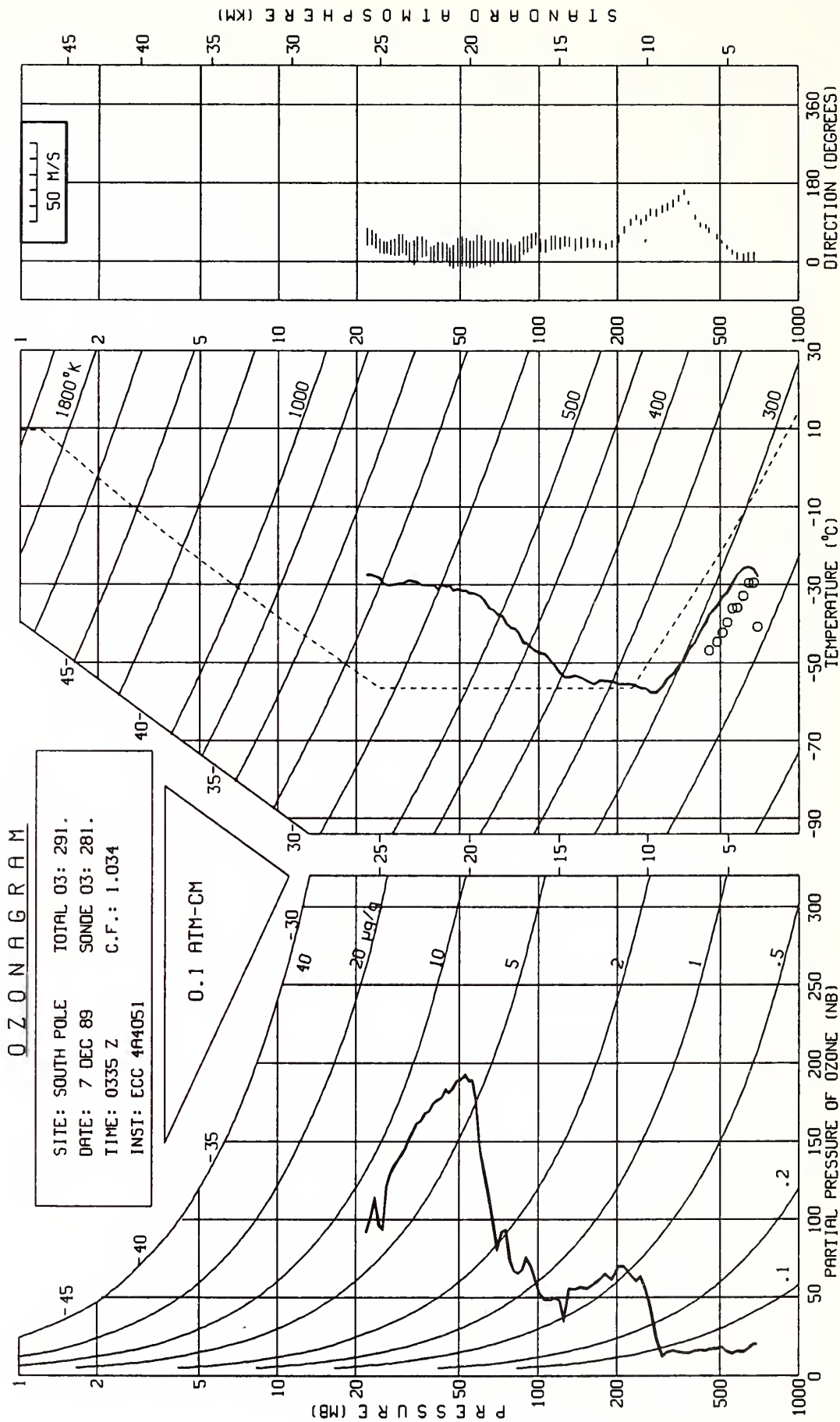
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
17.7	15.5	54.0	61.0	147.1	117.8	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110130118904	00279	99	.944	ECC	TOTAL O3 FROM SONDE DATA 296
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFPPPP	P3TTTDDDDFFPPPP	P3TTTDDDDFFPPPP	P3TTTDDDDFFPPPP
1110230118904	686	25-31		500	19-35129 1 300 11-59240 3 200 64-59200 1
1110330118904	150	49-58164	1	100	42-53 11 5 70 99-42 49 9 50117-32307 24
1110430118904		30154-26343	1920.0	105-25331	1110.0 47-17316 6 661 20-30266 0
1110530118904	638	15-25266	0	335	11-56278 3 280 9-62258 2 266 29-62260 3
1110630118904	241	49-61261	4	171	63-58 89 2 114 34-56 42 3 86 53-49352 7
1110730118904	83	71-48351	6	73	82-44 9 9 68 96-41347 9 55123-34355 14
1110830118904		49114-32341	14	47164-31	41 25 43181-29347 16 33154-27340 15
1110930118904	12.2	55-19349	8	9.4	44-16343 7



STATION: SOUTH POLE LAUNCH DATE: 7 DEC 89 335 Z ECC SONDE: 4A4051
 SURFACE CONDITIONS: PRESSURE 694.2 MB, TEMPERATURE -28.1 C, HUMIDITY 28.3 %
 CAL DATA: AIR TEMP 30.0 C AT 73.6 ORD; HUM 33.0 % AT 77.5 ORD; TBOX 28.5 C AT 72.1 ORD;
 O3 ORD ZERO 34.2, BKGND 34.7, CAL 72.1; O3 BKGND 0.069 MICROAMP; FLOW RATE 26.1 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 291.; SONDE TOTAL O3 281.; C.F. 1.034

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	694.2	2835.	20.2	.029	47.6	.0000	-28.1	-41.0	28.3	272.0		
1	672.0	3069.	20.3	.030	47.4	.0005	-26.3	-29.7	73.6	276.6	5.1	12.
2	641.0	3411.	17.3	.027	40.2	.0012	-25.7	-29.8	69.7	280.9	5.1	12.
3	612.0	3747.	15.2	.025	35.7	.0018	-26.0	-33.1	51.7	284.4	5.2	9.
4	581.0	4122.	15.7	.027	37.1	.0025	-27.7	-36.1	45.1	286.6	4.3	13.
5	556.0	4437.	14.3	.026	33.9	.0030	-29.8	-36.3	54.2	287.8	2.9	22.
6	533.0	4736.	15.3	.029	36.6	.0035	-32.2	-39.9	47.0	288.4	2.7	33.
7	510.0	5047.	18.4	.036	44.3	.0040	-33.4	-42.5	40.1	290.7	2.3	45.
8	486.0	5384.	17.5	.036	42.4	.0047	-35.6	-44.9	38.7	291.9	3.5	57.
9	454.0	5855.	17.1	.038	42.0	.0057	-38.0	-47.1	38.5	294.7	3.3	72.
10	442.0	6039.	16.0	.036	39.7	.0060	-39.9			294.5	2.5	80.
11	420.0	6386.	16.5	.039	41.3	.0066	-42.1			296.1	2.9	84.
12	400.0	6714.	16.0	.040	40.5	.0073	-45.0			296.4	2.9	102.
13	378.0	7091.	14.6	.039	37.2	.0080	-46.9			298.8	2.1	135.
14	363.0	7358.	14.7	.040	37.9	.0084	-49.5			298.8	3.3	159.
15	346.0	7671.	15.1	.044	39.2	.0090	-51.0			300.9	4.2	145.
16	329.0	7997.	16.0	.049	42.2	.0096	-53.1			302.3	4.9	133.
17	313.0	8318.	15.1	.048	39.7	.0102	-54.2			305.1	5.1	127.
18	300.0	8588.	12.6	.042	33.5	.0107	-56.3			305.8	4.5	121.
19	285.0	8913.	23.5	.082	62.9	.0113	-57.8			308.2	4.6	112.
20	270.0	9254.	43.4	.161	116.5	.0125	-57.8			313.0	4.3	113.
21	259.0	9517.	54.5	.210	145.6	.0140	-56.8			318.2	3.8	100.
22	247.0	9817.	63.2	.256	168.6	.0161	-56.7			322.8	3.3	91.
23	237.0	10080.	60.7	.256	161.4	.0182	-56.2			327.4	3.1	101.
24	226.0	10382.	64.4	.285	171.2	.0204	-55.7			332.6	3.7	90.
25	213.0	10760.	70.1	.329	186.3	.0235	-55.7			338.3	4.1	73.
26	203.0	11066.	70.0	.345	185.9	.0262	-55.7			343.0	4.7	52.
27	191.0	11455.	61.5	.322	163.0	.0294	-55.0			350.0	4.6	41.
28	181.1	11795.	65.1	.359	172.0	.0320	-54.9			355.7	4.0	35.
29	171.6	12139.	61.5	.359	162.7	.0347	-54.7			361.4	4.4	40.
30	162.5	12487.	58.2	.358	154.7	.0373	-55.7			365.5	5.5	43.
31	153.8	12838.	55.9	.363	147.7	.0398	-54.9			372.7	5.9	43.
32	145.7	13185.	56.8	.390	149.7	.0422	-54.1			379.8	7.4	43.
33	138.2	13524.	55.2	.400	145.2	.0445	-53.5			386.7	7.7	39.
34	131.1	13863.	55.5	.424	146.1	.0468	-53.9			391.8	6.4	45.
35	125.6	14139.	36.2	.288	95.5	.0485	-53.9			396.6	6.8	46.
36	120.8	14389.	48.3	.400	126.7	.0497	-52.8			403.0	7.5	42.
37	115.3	14691.	49.6	.431	129.1	.0515	-51.0			411.8	8.5	44.
38	111.0	14939.	48.4	.436	125.1	.0529	-49.8			418.6	8.6	42.
39	106.1	15236.	48.9	.461	125.4	.0547	-48.0			427.4	8.6	35.
40	101.1	15554.	53.4	.528	136.7	.0565	-47.7			433.9	8.3	37.
41	97.0	15828.	62.6	.645	159.9	.0583	-47.2			440.2	8.3	52.
42	93.9	16043.	69.9	.745	178.0	.0600	-46.4			445.7	9.5	47.
43	90.3	16304.	75.6	.837	191.5	.0622	-45.3			452.9	10.4	40.
44	87.1	16545.	68.0	.780	171.9	.0643	-45.0			458.2	11.2	37.
45	84.0	16788.	65.2	.776	163.2	.0662	-42.6			467.8	12.1	24.
46	80.9	17043.	67.1	.830	167.2	.0681	-41.4			475.4	11.6	16.
47	78.2	17273.	73.7	.943	183.5	.0700	-41.3			480.3	11.3	20.
48	75.4	17521.	93.2	1.236	230.8	.0722	-40.2			487.6	14.3	25.
49	72.7	17771.	92.2	1.268	226.5	.0749	-38.3			496.7	13.4	21.

STATION: SOUTH POLE			LAUNCH DATE: 7 DEC 89				335 Z	ECC		SONDE: 4A4051		
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	70.0	18032.	81.5	1.164	200.0	.0775	-37.9			503.0	12.4	23.
51	67.5	18283.	98.3	1.456	239.8	.0800	-36.7			510.8	15.9	23.
52	64.9	18555.	114.8	1.769	279.8	.0831	-36.3			517.5	17.0	18.
53	62.3	18840.	130.2	2.090	314.8	.0870	-34.4			527.7	15.3	20.
54	60.2	19081.	144.6	2.402	347.8	.0906	-33.2			535.5	18.2	27.
55	58.0	19342.	176.6	3.044	423.9	.0950	-32.7			542.4	20.3	25.
56	56.1	19577.	189.1	3.370	453.6	.0998	-32.4			548.2	17.1	17.
57	54.4	19794.	188.9	3.472	452.9	.1043	-32.4			553.1	17.2	17.
58	52.7	20018.	192.5	3.652	460.3	.1090	-31.7			559.9	18.3	21.
59	51.0	20250.	189.6	3.717	453.1	.1139	-31.7			565.2	18.9	23.
60	49.0	20533.	188.5	3.848	450.0	.1198	-31.3			572.6	18.0	21.
61	47.1	20813.	183.6	3.898	438.9	.1257	-31.7			578.2	14.8	11.
62	45.5	21059.	180.9	3.976	430.3	.1307	-30.3			587.1	12.1	10.
63	44.4	21233.	183.3	4.128	436.2	.1341	-30.6			590.6	11.9	21.
64	42.7	21510.	177.9	4.166	422.9	.1396	-30.3			597.9	11.6	24.
65	41.0	21798.	176.2	4.299	420.7	.1453	-31.3			602.5	11.5	23.
66	39.6	22045.	174.0	4.393	413.5	.1500	-30.3			610.9	11.3	16.
67	38.3	22282.	169.3	4.421	402.6	.1545	-30.3			616.7	9.6	17.
68	36.9	22547.	168.1	4.555	399.5	.1595	-30.3			623.3	9.9	30.
69	35.5	22822.	163.2	4.597	388.0	.1646	-30.3			630.2	13.3	33.
70	34.1	23109.	161.4	4.735	382.5	.1697	-29.5			639.6	16.2	28.
71	33.0	23343.	155.8	4.720	369.0	.1738	-29.4			646.0	15.3	20.
72	31.9	23585.	151.2	4.740	357.9	.1779	-29.2			653.0	12.4	21.
73	30.8	23836.	145.1	4.711	344.0	.1821	-29.5			658.5	9.7	32.
74	29.9	24047.	141.5	4.732	335.9	.1854	-29.9			663.0	11.8	40.
75	29.0	24265.	138.0	4.758	327.5	.1888	-29.9			668.8	13.6	37.
76	28.0	24515.	134.2	4.795	319.2	.1925	-30.2			674.8	10.8	32.
77	27.0	24774.	128.7	4.765	306.0	.1963	-30.3			681.5	9.5	32.
78	26.1	25015.	120.9	4.632	287.5	.1997	-30.3			688.1	7.8	32.
79	25.3	25236.	93.8	3.708	222.8	.2025	-29.9			695.4	7.7	32.
80	24.5	25466.	96.0	3.918	226.6	.2049	-28.5			706.0	8.4	36.
81	23.6	25734.	112.9	4.786	266.1	.2078	-28.1			714.7	8.9	47.
82	22.8	25982.	101.9	4.468	239.6	.2108	-27.7			723.0	9.6	54.
83	21.9	26271.	91.6	4.184	215.6	.2139	-27.7			731.3	10.6	56.

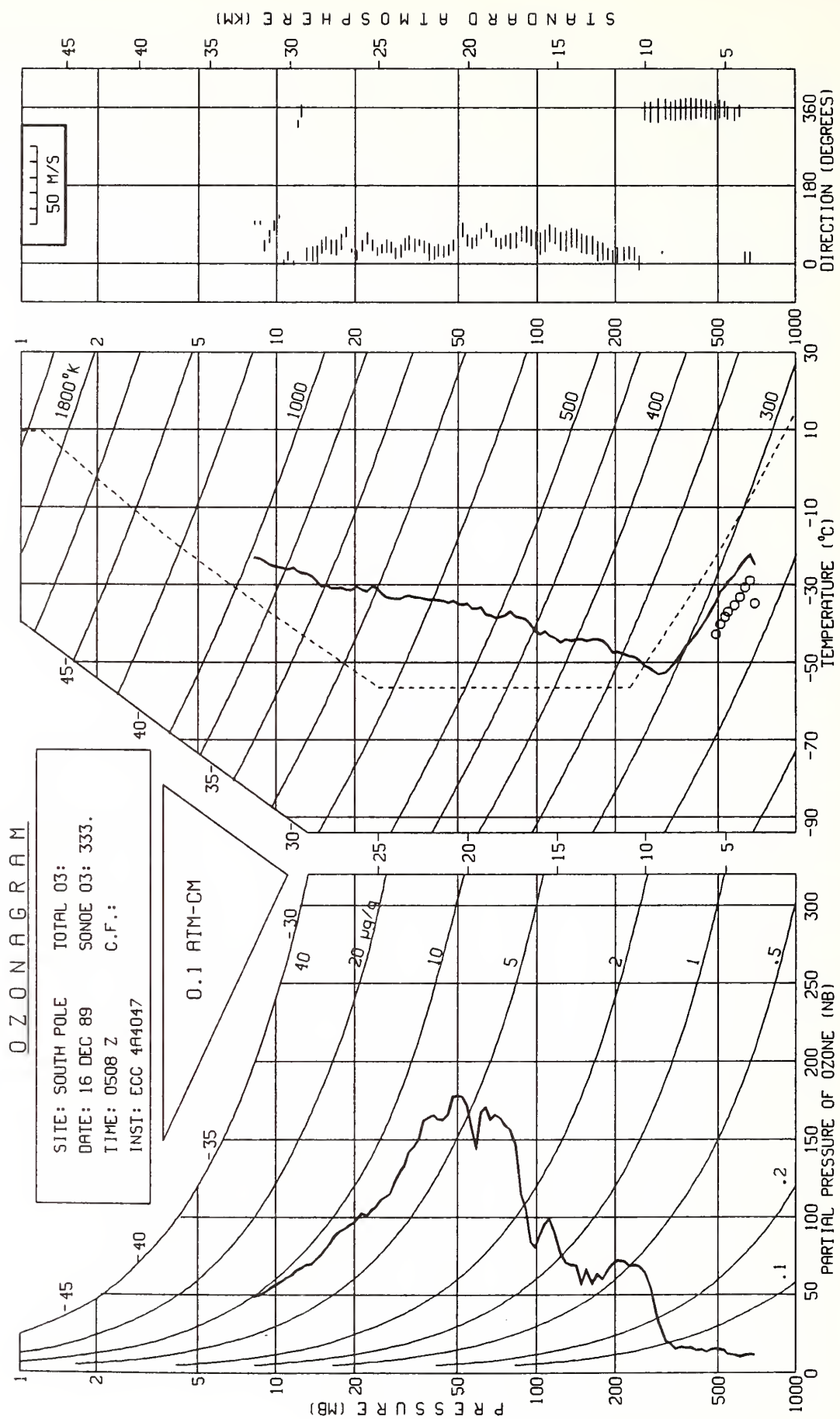
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
16.7	20.6	60.4	69.6	171.2	999.9	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110107128904	00291		991.034	ECC	TOTAL O3 FROM SONDE DATA 281
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110207128904	694	20-28		500	18-34 50 3 300 13-56121 5 200 68-56 49 5
1110307128904	150	56-55 43	7	100	56-48 41 8 70 82-38 23 12 50189-32 22 18
1110407128904	30142-30	39 12	612	15-26 9	5 270 43-58113 4 247 63-57 91 3
1110507128904	131	56-54 45	6	126	36-54 46 7 121 48-53 42 8 90 76-45 40 10
1110607128904	81	67-41 16	12	75	93-40 25 14 60145-33 27 18 58177-33 25 20
1110707128904	56189-32	17 17	34161-30	28	1626.1121-30 32 825.3 94-30 32 8
1110807128904	24.5	96-29 36	823.6113-28	47	921.9 92-28 56 11



STATION: SOUTH POLE LAUNCH DATE: 16 DEC 89 508 Z ECC SONDE: 4A4047
 SURFACE CONDITIONS: PRESSURE 692.8 MB, TEMPERATURE -25.1 C, HUMIDITY 39.7 %
 CAL DATA: AIR TEMP 30.0 C AT 73.0 ORD; HUM 33.0 % AT 77.8 ORD; TBOX 26.1 C AT 72.4 ORD;
 O3 ORD ZERO 34.1, BKGND 34.5, CAL 69.9; O3 BKGND 0.059 MICROAMP; FLOW RATE 25.8 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 ; SONDE TOTAL O3 333.; C.F.

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	692.8	2835.	11.7	.017	27.3	.0000	-25.1	-35.0	39.7	275.4		
1	663.0	3156.	11.9	.018	27.4	.0004	-22.4	-29.1	54.7	282.1	7.9	13.
2	636.0	3461.	11.4	.018	26.4	.0008	-23.8	-30.9	52.5	283.8	7.9	13.
3	608.0	3789.	10.5	.017	24.5	.0012	-25.5	-33.4	48.3	285.4	7.5	354.
4	580.0	4129.	11.5	.020	27.2	.0016	-27.7	-35.5	47.7	286.8	8.1	345.
5	546.0	4562.	12.0	.022	28.5	.0021	-29.4	-37.2	47.3	289.8	8.2	349.
6	532.0	4747.	14.4	.027	34.3	.0024	-30.7	-38.5	46.8	290.4	10.0	358.
7	510.0	5046.	14.9	.029	35.6	.0029	-32.0	-40.4	44.0	292.3	11.2	357.
8	490.0	5327.	15.4	.031	37.3	.0033	-34.7	-43.0	43.0	292.4	10.3	351.
9	470.0	5617.	15.0	.032	36.5	.0038	-36.8			293.2	12.2	354.
10	451.0	5901.	13.6	.030	33.5	.0043	-39.1			293.8	12.3	357.
11	432.0	6195.	14.9	.034	37.1	.0048	-40.9			295.2	11.5	359.
12	413.0	6500.	14.5	.035	36.3	.0053	-42.9			296.5	12.7	358.
13	394.0	6816.	16.3	.041	41.3	.0059	-44.6			298.3	13.9	358.
14	376.0	7128.	15.9	.042	40.4	.0064	-46.0			300.4	13.9	358.
15	360.0	7416.	16.8	.047	43.2	.0070	-48.1			301.4	13.2	356.
16	344.0	7715.	15.4	.045	39.9	.0076	-50.0			302.7	13.0	354.
17	329.0	8005.	18.6	.057	48.6	.0081	-51.5			304.5	11.8	353.
18	315.0	8287.	20.4	.065	53.5	.0088	-52.8			306.5	12.9	357.
19	294.0	8731.	33.8	.115	88.7	.0101	-53.3			312.0	15.2	354.
20	276.0	9139.	54.1	.196	141.2	.0120	-52.0			319.5	12.7	350.
21	261.0	9502.	64.8	.248	168.4	.0145	-51.1			326.0	11.7	353.
22	247.0	9862.	68.6	.278	177.0	.0173	-49.6			333.4	9.5	1.
23	238.0	10105.	69.3	.291	178.3	.0193	-48.8			338.1	8.1	22.
24	227.0	10417.	68.7	.303	176.7	.0219	-48.7			342.9	8.4	25.
25	216.0	10744.	71.7	.332	183.8	.0246	-48.1			348.8	9.1	22.
26	204.0	11121.	72.1	.353	184.4	.0278	-47.5			355.4	10.4	19.
27	195.7	11395.	69.9	.357	179.0	.0301	-47.6			359.4	8.5	15.
28	187.3	11686.	65.8	.351	167.1	.0325	-45.9			366.8	7.8	22.
29	179.0	11989.	60.3	.337	152.4	.0348	-44.7			373.5	11.2	28.
30	171.2	12287.	63.3	.370	159.6	.0369	-44.3			379.0	12.7	29.
31	163.6	12592.	57.3	.350	144.4	.0391	-44.3			383.9	11.5	42.
32	155.8	12919.	66.3	.426	167.6	.0414	-44.7			388.6	11.9	44.
33	148.7	13231.	57.2	.385	144.4	.0438	-44.3			394.5	12.4	47.
34	142.1	13535.	69.1	.486	174.2	.0459	-44.3			399.7	12.2	58.
35	135.8	13839.	69.3	.510	175.0	.0483	-44.6			404.4	12.3	59.
36	129.4	14163.	70.9	.548	178.7	.0510	-44.3			410.5	13.0	52.
37	123.4	14480.	77.6	.629	196.4	.0537	-45.0			414.8	11.5	51.
38	117.4	14814.	90.1	.767	226.9	.0568	-44.0			422.6	10.3	64.
39	111.9	15137.	99.0	.885	248.7	.0603	-43.3			429.8	11.1	70.
40	107.4	15414.	95.4	.888	238.5	.0634	-42.2			437.0	14.3	52.
41	103.0	15696.	88.6	.860	222.2	.0665	-42.9			440.9	14.3	46.
42	98.9	15971.	80.9	.818	202.2	.0693	-42.2			447.4	11.0	54.
43	95.0	16244.	84.3	.887	209.3	.0718	-40.7			455.5	10.8	60.
44	91.0	16538.	106.0	1.165	261.5	.0748	-39.1			464.2	10.2	68.
45	87.1	16838.	115.2	1.323	283.7	.0786	-38.7			470.8	9.3	69.
46	83.1	17161.	146.8	1.767	361.1	.0831	-38.5			477.8	10.1	54.
47	79.2	17493.	156.6	1.977	382.9	.0887	-37.1			487.2	9.0	51.
48	75.9	17786.	158.8	2.092	390.0	.0939	-38.1			491.1	7.2	53.
49	72.7	18083.	163.4	2.248	402.0	.0994	-38.5			496.4	7.1	46.

STATION: SOUTH POLE			LAUNCH DATE: 16 DEC 89				508 Z	ECC	SONDE: 4A4047			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	69.4	18402.	165.8	2.389	408.2	.1053	-38.7			502.4	5.7	49.
51	66.7	18675.	162.7	2.439	399.5	.1104	-38.1			509.6	4.7	69.
52	64.1	18949.	170.6	2.661	418.6	.1155	-37.9			515.7	5.4	83.
53	61.3	19258.	167.6	2.734	408.0	.1214	-36.0			526.5	6.7	69.
54	58.9	19535.	145.3	2.467	354.1	.1265	-36.3			532.0	7.1	54.
55	56.6	19811.	156.5	2.765	381.5	.1311	-36.3			538.1	7.0	47.
56	54.2	20113.	171.8	3.170	416.4	.1366	-35.0			547.9	7.5	54.
57	52.0	20401.	177.7	3.417	431.5	.1422	-35.4			553.4	8.7	77.
58	49.8	20703.	177.8	3.570	431.1	.1482	-35.1			561.0	7.7	72.
59	47.8	20989.	177.3	3.709	428.5	.1539	-34.3			569.5	7.2	42.
60	46.0	21257.	165.9	3.607	401.9	.1592	-34.8			574.5	7.3	31.
61	44.0	21568.	162.4	3.691	392.4	.1649	-34.3			583.1	7.2	27.
62	41.9	21910.	163.1	3.893	394.0	.1712	-34.2			591.7	7.7	31.
63	40.3	22183.	165.6	4.109	399.9	.1761	-34.0			598.6	8.2	24.
64	38.6	22485.	164.1	4.251	396.1	.1817	-34.0			606.0	10.9	27.
65	37.0	22781.	162.2	4.384	391.1	.1872	-33.8			614.1	7.6	39.
66	35.4	23092.	149.8	4.232	360.9	.1927	-33.5			622.6	4.1	49.
67	34.0	23375.	145.8	4.288	351.0	.1974	-33.4			630.1	8.2	42.
68	32.3	23735.	141.7	4.387	340.6	.2033	-33.0			640.5	9.4	47.
69	31.1	24002.	133.1	4.280	320.3	.2074	-33.2			646.8	7.6	44.
70	30.0	24254.	129.5	4.317	312.3	.2111	-33.8			652.0	8.3	28.
71	28.6	24590.	122.6	4.287	295.6	.2159	-33.8			661.0	7.8	24.
72	27.4	24890.	115.2	4.204	277.8	.2200	-33.6			669.5	7.1	37.
73	26.3	25178.	113.3	4.308	272.7	.2237	-33.4			678.1	8.4	40.
74	25.2	25479.	111.3	4.417	267.0	.2275	-32.4			689.1	5.7	34.
75	24.2	25765.	107.3	4.434	255.7	.2310	-31.0			701.3	5.6	28.
76	23.2	26064.	104.9	4.522	249.8	.2345	-30.7			710.6	7.4	42.
77	22.2	26376.	100.8	4.541	241.3	.2381	-32.0			715.7	7.1	58.
78	21.2	26702.	102.5	4.835	245.0	.2418	-31.5			726.8	8.1	41.
79	20.2	27045.	97.7	4.837	232.5	.2456	-30.7			739.3	6.6	19.
80	19.3	27368.	95.5	4.948	228.2	.2491	-31.6			746.1	2.4	29.
81	18.4	27706.	92.9	5.049	222.0	.2526	-31.5			756.8	6.0	73.
82	17.7	27981.	91.2	5.153	217.4	.2554	-31.0			766.9	10.2	50.
83	16.9	28309.	88.7	5.249	211.6	.2587	-31.1			776.7	10.0	37.
84	16.2	28609.	83.8	5.173	199.8	.2616	-31.1			786.1	9.1	38.
85	15.4	28968.	79.4	5.156	188.7	.2649	-30.3			800.2	8.5	47.
86	14.9	29203.	76.0	5.101	181.1	.2669	-30.7			806.5	8.7	38.
87	14.3	29496.	73.5	5.140	174.1	.2694	-29.4			820.4	11.2	20.
88	13.7	29802.	69.7	5.088	164.3	.2718	-28.1			835.1	9.4	22.
89	13.0	30180.	69.4	5.338	162.9	.2747	-27.3			850.4	8.4	21.
90	12.4	30520.	67.1	5.411	157.5	.2773	-27.1			862.4	7.9	353.
91	12.0	30757.	65.9	5.492	154.2	.2790	-26.6			872.4	5.1	323.
92	11.6	31002.	63.3	5.457	147.8	.2807	-25.8			883.8	2.8	1.
93	11.0	31386.	61.2	5.564	143.1	.2833	-26.3			895.3	5.9	16.
94	10.6	31654.	59.2	5.585	138.3	.2851	-25.9			906.3	3.1	3.
95	10.2	31933.	57.7	5.657	134.6	.2868	-25.7			917.3	2.8	108.
96	9.8	32260.	55.7	5.713	129.9	.2889	-25.4			930.2	6.5	87.
97	9.4	32541.	53.4	5.693	124.2	.2905	-25.0			942.1	7.6	62.
98	9.0	32866.	51.4	5.730	119.1	.2924	-24.1			957.8	7.0	41.
99	8.6	33183.	50.0	5.821	115.6	.2941	-23.4			972.3	2.3	94.
100	8.2	33532.	49.3	6.020	113.8	.2960	-23.2			986.6	2.3	94.

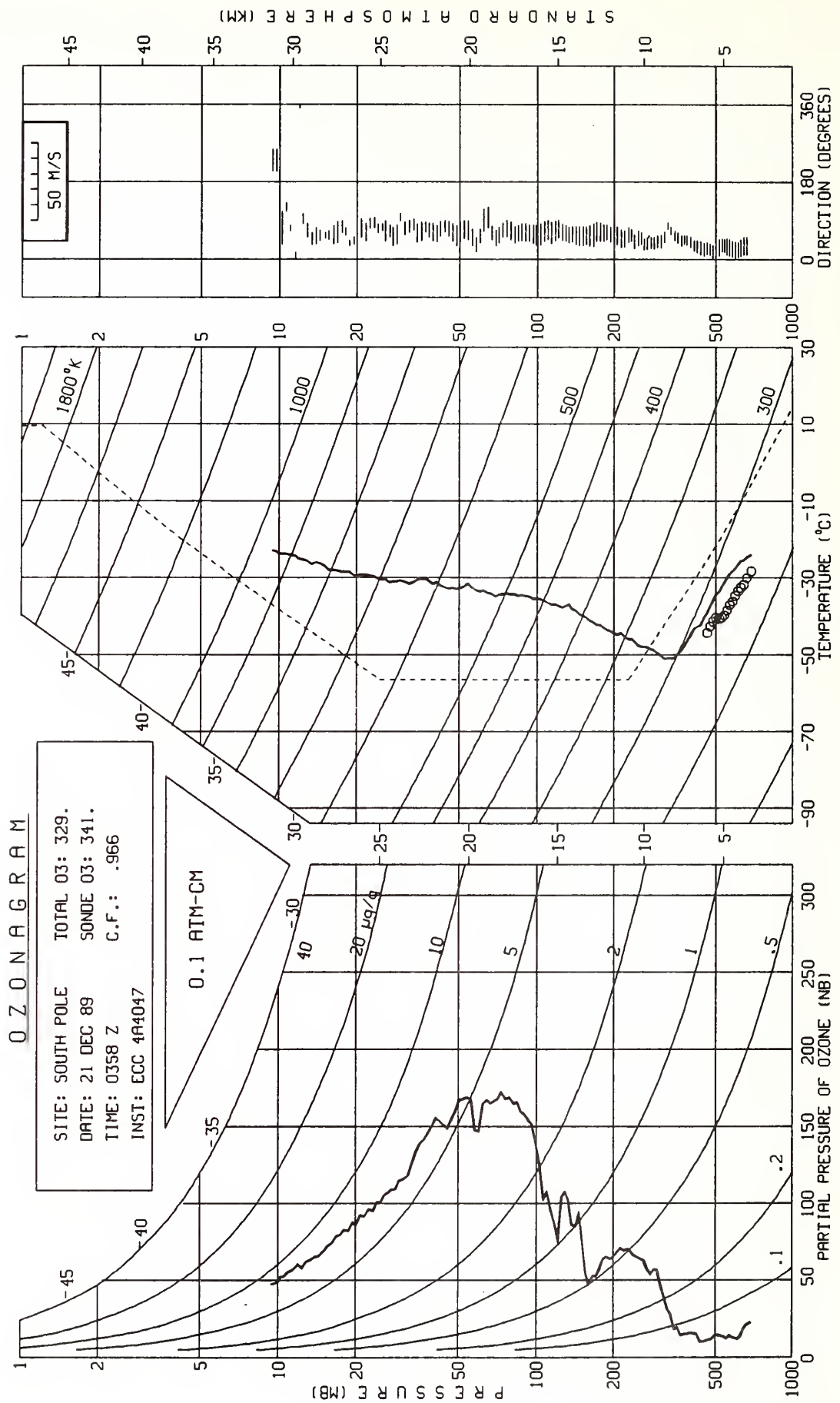
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
12.1	24.9	66.2	120.5	160.9	104.2	63.8	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110116128905		99			ECC TOTAL O3 FROM SONDE DATA 333
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	PPPP P3TTTDDDDFFFP
1110216128905	693	12-25		500	15-33354 11 300 30-53355 15 200 71-48 17 9
1110316128905	150	59-44	46	12	100 83-42 52 12 70165-39 48 6 50178-35 72 8
1110416128905	301	30-34	28	820.0	97-31 21 610.0 57-26 99 4 663 12-22 13 8
1110516128905	344	15-50	354	13	261 65-51353 12 179 60-45 28 11 164 57-44 42 12
1110616128905	156	66-45	44	12	123 78-45 51 12 112 99-43 70 11 95 84-41 60 11
1110716128905	911	06-39	68	10	87115-39 69 9 83147-39 54 10 79157-37 51 9
1110816128905	611	68-36	69	7	59145-36 54 7 54172-35 54 8 44162-34 27 7
1110916128905	371	62-34	39	827.4	115-34 37 714.9 76-31 38 911.6 63-26 1 3
1111016128905	8.2	49-23	94	2	



STATION: SOUTH POLE LAUNCH DATE: 21 DEC 89 358 Z ECC SONDE: 4A4047
 SURFACE CONDITIONS: PRESSURE 688.2 MB, TEMPERATURE -24.2 C, HUMIDITY 68.5 %
 CAL DATA: AIR TEMP 30.0 C AT 73.7 ORD; HUM 33.0 % AT 77.8 ORD; TBOX 26.8 C AT 72.7 ORD;
 O3 ORD ZERO 31.7, BKGND 32.3, CAL 67.2; O3 BKGND 0.089 MICROAMP; FLOW RATE 26.2 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 329.; SONDE TOTAL O3 341.; C.F. .966

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	688.2	2835.	22.9	.033	53.0	.0000	-24.2	-28.5	68.5	277.0		
1	662.0	3118.	21.1	.032	49.1	.0007	-24.9	-30.3	61.4	279.3	11.5	30.
2	644.0	3318.	18.3	.028	42.7	.0011	-25.7	-32.0	56.0	280.7	11.5	30.
3	626.0	3523.	13.6	.022	31.8	.0015	-25.9	-32.8	53.2	282.6	11.0	26.
4	612.0	3687.	11.7	.019	27.4	.0017	-26.8	-33.7	53.1	283.4	10.0	22.
5	597.0	3865.	12.6	.021	29.5	.0020	-27.9	-34.9	51.9	284.2	10.3	22.
6	583.0	4036.	12.7	.022	30.0	.0022	-28.5	-36.4	47.6	285.4	10.4	24.
7	568.0	4222.	14.2	.025	33.6	.0025	-29.2	-37.3	46.3	286.7	10.9	27.
8	554.0	4400.	11.9	.021	28.2	.0027	-30.3	-38.7	44.2	287.6	10.4	29.
9	541.0	4569.	13.3	.025	31.8	.0030	-31.4	-40.0	43.3	288.1	8.5	31.
10	529.0	4727.	13.8	.026	33.1	.0032	-32.5	-40.6	44.7	288.7	8.6	32.
11	516.0	4902.	14.3	.028	34.5	.0035	-33.8	-40.9	49.4	289.2	10.9	27.
12	500.0	5123.	14.4	.029	34.8	.0038	-34.7	-40.6	56.0	290.7	10.7	22.
13	487.0	5306.	12.5	.026	30.4	.0041	-36.3	-41.6	59.0	290.9	8.3	18.
14	474.0	5493.	11.6	.024	28.3	.0044	-37.8	-42.9	59.7	291.3	7.8	22.
15	462.0	5669.	11.1	.024	27.4	.0046	-39.4	-44.6	59.0	291.5	7.7	25.
16	449.0	5864.	10.2	.023	25.4	.0048	-40.6			292.3	8.6	23.
17	436.0	6064.	10.1	.023	25.5	.0051	-42.5			292.4	9.0	26.
18	422.0	6284.	15.4	.036	38.5	.0054	-42.9			294.6	8.1	30.
19	410.0	6478.	15.5	.038	38.8	.0057	-43.6			296.1	7.3	32.
20	398.0	6677.	15.8	.040	40.2	.0061	-45.3			296.5	6.9	39.
21	386.0	6881.	15.0	.039	38.1	.0064	-46.7			297.2	6.3	44.
22	377.0	7037.	15.0	.040	38.3	.0067	-47.7			297.9	5.9	44.
23	366.0	7232.	14.5	.040	37.3	.0071	-49.1			298.6	6.7	43.
24	355.0	7432.	19.5	.055	50.5	.0074	-50.1			299.9	6.5	50.
25	345.0	7618.	18.5	.054	48.2	.0079	-51.1			300.9	6.1	54.
26	334.0	7829.	28.5	.085	74.0	.0084	-51.1			303.7	4.8	66.
27	325.0	8006.	31.5	.097	81.8	.0090	-51.1			306.1	4.5	78.
28	316.0	8189.	38.1	.121	99.3	.0097	-51.3			308.3	7.0	51.
29	305.0	8419.	47.2	.155	122.4	.0109	-50.5			312.5	8.2	41.
30	296.0	8615.	56.6	.191	146.4	.0120	-49.8			316.3	8.1	40.
31	287.0	8817.	56.9	.198	146.6	.0134	-49.1			320.1	7.8	38.
32	279.0	9003.	53.8	.193	138.5	.0146	-48.9			322.9	7.4	38.
33	270.0	9219.	57.7	.214	148.0	.0161	-48.3			326.8	7.7	36.
34	263.0	9392.	62.6	.238	160.7	.0173	-48.2			329.5	7.6	35.
35	256.0	9569.	63.7	.249	163.5	.0186	-48.2			332.1	8.1	48.
36	249.0	9752.	64.8	.260	166.1	.0200	-47.9			335.1	9.5	48.
37	240.0	9996.	66.3	.276	169.3	.0218	-46.7			340.4	9.0	41.
38	234.0	10164.	68.6	.293	174.3	.0231	-46.2			343.7	7.9	55.
39	228.0	10336.	70.5	.309	179.4	.0245	-46.3			346.1	9.5	56.
40	220.0	10574.	69.3	.315	175.9	.0265	-45.6			350.7	11.0	48.
41	213.0	10790.	70.9	.333	178.9	.0283	-44.6			355.5	11.6	48.
42	206.0	11014.	68.1	.330	172.4	.0301	-45.0			358.3	11.6	54.
43	199.9	11215.	65.1	.326	164.4	.0317	-44.6			362.0	10.6	58.
44	193.8	11422.	63.8	.329	160.8	.0332	-44.1			366.1	9.8	57.
45	187.8	11633.	65.1	.347	163.8	.0348	-43.8			369.9	10.1	62.
46	182.0	11844.	63.8	.351	160.2	.0364	-43.2			374.1	11.1	61.
47	176.4	12055.	57.1	.324	142.9	.0379	-42.5			378.6	11.2	62.
48	171.0	12265.	52.6	.308	131.7	.0393	-42.5			382.0	12.7	64.
49	165.6	12482.	52.7	.318	131.7	.0406	-41.8			386.7	15.0	56.

STATION: SOUTH POLE				LAUNCH DATE: 21 DEC 89				358 Z		ECC SONDE: 4A4047			
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND	
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG	
50	160.2	12707.	47.4	.296	118.0	.0420	-41.3			391.3	13.4	54.	
51	155.6	12905.	54.3	.349	134.8	.0431	-40.6			395.7	11.9	55.	
52	151.0	13110.	75.0	.497	185.9	.0445	-40.1			400.0	12.3	53.	
53	146.3	13326.	93.1	.636	230.3	.0465	-39.8			404.1	12.9	53.	
54	141.6	13550.	85.1	.601	209.6	.0488	-38.7			409.8	11.6	55.	
55	137.3	13762.	86.1	.627	211.9	.0508	-38.5			413.9	10.1	58.	
56	133.1	13976.	102.5	.770	250.7	.0530	-37.1			420.0	10.1	56.	
57	129.0	14192.	107.4	.832	263.2	.0556	-37.5			423.0	10.3	59.	
58	125.0	14409.	104.0	.832	255.2	.0582	-37.9			426.1	10.9	63.	
59	120.9	14639.	76.6	.633	187.6	.0607	-37.5			430.9	11.2	69.	
60	117.2	14854.	87.5	.747	214.0	.0627	-37.1			435.5	12.4	65.	
61	113.4	15082.	96.3	.849	235.5	.0650	-37.1			439.6	13.9	61.	
62	109.9	15299.	107.4	.977	262.3	.0674	-36.7			444.4	12.9	68.	
63	106.3	15530.	102.7	.967	250.3	.0702	-36.2			449.6	13.2	64.	
64	102.7	15769.	125.3	1.220	304.6	.0731	-35.8			454.8	13.5	57.	
65	98.9	16031.	140.1	1.417	340.5	.0769	-35.7			460.0	13.0	56.	
66	95.9	16245.	151.2	1.577	367.6	.0803	-35.7			464.1	12.1	57.	
67	92.9	16467.	154.1	1.659	373.9	.0841	-35.1			469.4	10.9	62.	
68	89.9	16696.	157.9	1.756	382.8	.0880	-35.0			474.0	11.2	62.	
69	86.9	16933.	159.7	1.838	386.8	.0922	-34.7			479.2	11.0	62.	
70	84.2	17153.	165.7	1.968	401.6	.0962	-34.9			483.3	10.7	60.	
71	81.5	17381.	164.7	2.021	398.4	.1005	-34.5			488.6	10.9	57.	
72	78.8	17616.	168.7	2.141	408.0	.1049	-34.5			493.3	11.9	66.	
73	76.0	17869.	167.9	2.210	406.0	.1096	-34.3			498.7	10.9	71.	
74	73.2	18132.	172.1	2.351	416.3	.1146	-34.5			503.8	9.6	67.	
75	71.0	18345.	167.7	2.363	405.9	.1186	-34.6			508.0	10.1	56.	
76	68.8	18565.	166.7	2.423	404.3	.1228	-35.1			511.4	10.6	49.	
77	66.5	18802.	165.0	2.482	399.0	.1272	-34.3			518.1	9.1	61.	
78	64.3	19037.	167.2	2.600	403.9	.1316	-34.2			523.4	13.4	97.	
79	62.1	19281.	164.3	2.645	395.8	.1361	-33.5			530.1	14.5	90.	
80	60.0	19523.	146.7	2.445	353.6	.1404	-33.7			535.0	9.2	54.	
81	57.9	19773.	147.6	2.548	355.6	.1445	-33.5			540.8	9.4	33.	
82	56.0	20007.	167.2	2.985	401.4	.1485	-32.7			547.8	11.2	50.	
83	54.0	20264.	168.8	3.126	403.9	.1533	-31.8			555.6	12.1	67.	
84	52.1	20517.	167.7	3.220	402.4	.1580	-32.5			559.8	11.9	68.	
85	50.3	20764.	167.0	3.319	401.2	.1626	-32.9			564.5	13.4	63.	
86	48.7	20992.	159.7	3.280	384.2	.1667	-33.1			569.2	13.2	54.	
87	47.0	21242.	154.3	3.283	370.7	.1712	-32.9			575.6	11.9	62.	
88	45.3	21501.	148.6	3.281	357.3	.1755	-33.0			581.4	9.5	70.	
89	43.8	21738.	150.9	3.446	362.4	.1795	-32.7			587.6	7.3	76.	
90	42.2	22000.	153.5	3.639	367.9	.1839	-32.2			595.2	9.5	70.	
91	40.8	22239.	155.4	3.808	371.2	.1879	-31.4			602.9	11.1	60.	
92	39.4	22486.	150.0	3.806	358.9	.1921	-31.8			608.0	11.6	63.	
93	38.0	22742.	145.2	3.822	346.1	.1964	-30.9			616.7	8.8	68.	
94	36.8	22970.	141.1	3.834	335.6	.2000	-30.5			623.3	6.4	74.	
95	35.5	23225.	139.2	3.920	331.1	.2040	-30.5			629.8	11.9	64.	
96	34.2	23490.	133.4	3.899	317.7	.2080	-30.8			635.8	11.7	60.	
97	33.0	23744.	125.4	3.801	299.7	.2117	-31.4			640.6	7.3	80.	
98	31.8	24006.	118.0	3.711	282.4	.2152	-31.8			646.4	8.0	77.	
99	30.5	24301.	115.8	3.796	276.2	.2191	-31.2			655.9	8.1	71.	
100	29.3	24586.	114.5	3.909	273.0	.2228	-30.9			664.2	4.8	97.	
101	28.4	24807.	109.2	3.846	260.6	.2255	-31.2			669.4	12.5	57.	
102	27.5	25035.	109.0	3.965	260.3	.2283	-31.2			675.6	12.1	53.	
103	26.7	25244.	107.0	4.007	255.6	.2308	-31.4			680.6	8.1	66.	
104	25.7	25515.	105.3	4.096	250.5	.2340	-30.5			690.7	13.1	65.	

STATION: SOUTH POLE			LAUNCH DATE: 21 DEC 89			358 Z	ECC SONDE: 4A4047					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	25.0	25711.	100.6	4.025	239.6	.2362	-30.8			695.4	5.0	74.
106	24.1	25972.	100.7	4.179	239.6	.2391	-30.5			703.5	5.8	71.
107	23.3	26212.	94.9	4.074	225.4	.2418	-29.9			712.2	6.9	85.
108	22.4	26493.	96.2	4.294	227.9	.2447	-29.6			721.1	7.2	84.
109	21.6	26752.	91.3	4.225	216.1	.2474	-29.5			729.0	11.5	63.
110	20.8	27022.	92.0	4.425	218.1	.2501	-29.5			736.9	12.3	72.
111	20.0	27302.	85.7	4.283	203.1	.2529	-29.6			744.8	11.3	74.
112	19.4	27519.	87.6	4.515	207.7	.2550	-29.6			751.3	4.8	43.
113	18.7	27782.	82.1	4.390	193.9	.2575	-28.7			762.1	3.2	37.
114	18.0	28055.	82.5	4.582	194.9	.2599	-28.7			770.4	5.4	64.
115	17.4	28297.	79.6	4.573	187.8	.2621	-28.7			777.9	8.1	75.
116	16.8	28549.	78.8	4.690	185.9	.2643	-28.4			786.6	13.7	63.
117	16.2	28810.	74.6	4.602	175.8	.2665	-28.2			795.7	12.1	55.
118	15.5	29127.	72.3	4.666	170.5	.2690	-28.2			805.8	5.9	55.
119	15.0	29362.	69.0	4.597	161.9	.2709	-27.2			816.4	3.6	55.
120	14.3	29707.	65.6	4.585	153.4	.2735	-26.4			830.3	6.8	55.
121	13.8	29965.	65.2	4.723	152.5	.2753	-26.2			839.7	10.8	55.
122	13.3	30231.	63.3	4.763	148.2	.2772	-26.6			847.2	8.4	48.
123	12.8	30508.	62.2	4.859	145.2	.2791	-25.8			859.3	9.0	68.
124	12.3	30797.	57.9	4.711	135.0	.2809	-25.5			870.1	6.4	94.
125	11.9	31037.	60.5	5.080	140.7	.2825	-25.3			879.3	2.4	356.
126	11.5	31286.	57.4	4.988	133.2	.2841	-24.5			890.7	4.2	8.
127	11.0	31610.	55.5	5.048	128.7	.2860	-24.2			903.1	3.4	72.
128	10.6	31880.	52.9	4.992	122.5	.2876	-23.9			913.6	5.6	120.
129	10.2	32161.	52.1	5.103	120.7	.2892	-23.9			923.7	21.3	72.
130	10.0	32305.	49.3	4.925	114.1	.2900	-23.9			929.0	22.2	63.
131	9.7	32528.	48.2	4.968	111.2	.2912	-23.3			939.6	14.4	231.
132	9.4	32766.	47.4	5.050	109.6	.2924	-23.1			948.9	14.4	231.

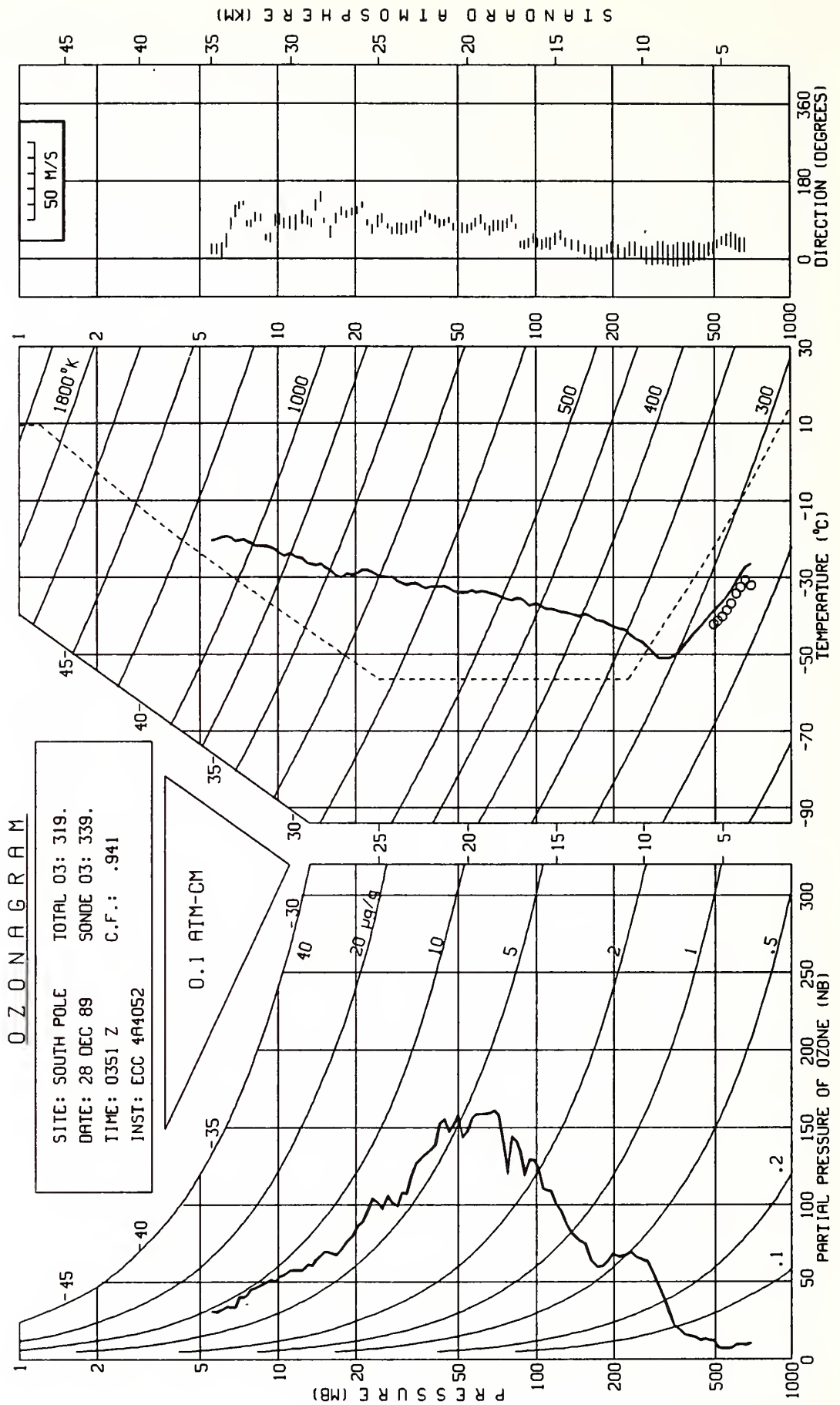
UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
15.1	29.1	70.3	140.9	149.1	94.5	999.9	999.9

CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX XP T CORR	COMMENTS
1110121128904	00329 99 .966	ECC TOTAL O3 FROM SONDE DATA 341
ISNNYYMMJJGG	PPPP P3TTTDDDDFFPPPP	P3TTTDDDDFFPPPP P3TTTDDDDFFPPPP P3TTTDDDDFFPPPP
1110221128904	688 23-24	500 14-35 22 11 300 52-50 40 8 200 65-45 58 11
1110321128904	150 79-40 53 12	100136-36 56 13 70167-35 53 10 50166-33 61 13
1110421128904	30115-31 82 720.0	86-30 74 1110.0 49-24 63 22 612 12-27 22 10
1110521128904	436 10-43 26 9 345	19-51 54 6 228 70-46 56 10 182 64-43 61 11
1110621128904	160 47-41 54 13 156	54-41 55 12 146 93-40 53 13 137 86-39 58 10
1110721128904	133102-37 56 10 125104-38	63 11 121 77-38 69 11 110107-37 68 13
1110821128904	106103-36 64 13 96151-36	57 12 84166-35 60 11 62164-34 90 15
1110921128904	60147-34 54 9 58148-34	33 9 56167-33 50 11 54169-32 67 12
1111021128904	45149-33 70 10 41155-31	60 11 9.4 47-23231 14



STATION: SOUTH POLE LAUNCH DATE: 28 DEC 89 351 Z ECC SONDE: 4A4052
 SURFACE CONDITIONS: PRESSURE 693.1 MB, TEMPERATURE -26.6 C, HUMIDITY 59.9 %
 CAL DATA: AIR TEMP 30.0 C AT 73.7 ORD; HUM 33.0 % AT 77.8 ORD; TBOX 26.0 C AT 72.3 ORD;
 O3 ORD ZERO 33.9, BKGND 34.6, CAL 70.5; O3 BKGND 0.100 MICROAMP; FLOW RATE 26.2 S/100 M
 FLIGHT NORMALIZED TO TOTAL O3 319.; SONDE TOTAL O3 339.; C.F. .941

TIME MIN	PRESS MB	ALT GPM	OZONE NB	OZONE PPMV	OZDEN GAMMA	TOTOZ ATMCM	TEMP C	DEWPT C	HUM %	POT T K	WIND M/S	WIND DEG
0	693.1	2835.	10.3	.015	24.0	.0000	-26.6	-32.2	59.9	273.8		
1	660.0	3188.	9.5	.014	22.3	.0004	-27.5	-30.9	73.7	276.6	9.4	32.
2	632.0	3499.	9.6	.015	22.7	.0007	-29.2	-32.7	73.0	278.1	9.4	32.
3	608.0	3774.	9.6	.016	22.8	.0010	-31.2	-34.4	74.0	279.0	9.8	39.
4	580.0	4107.	7.3	.013	17.8	.0013	-33.5	-37.0	72.1	280.0	9.6	44.
5	558.0	4377.	7.0	.012	16.9	.0016	-35.1	-38.7	71.1	281.2	7.4	44.
6	536.0	4657.	7.1	.013	17.2	.0018	-36.6	-40.4	69.3	282.7	5.3	42.
7	514.0	4947.	7.5	.015	18.5	.0020	-37.9	-41.5	70.5	284.5	5.8	35.
8	495.0	5206.	12.1	.025	29.8	.0023	-38.9	-42.4	70.3	286.4	7.3	25.
9	476.0	5473.	12.1	.026	30.1	.0026	-40.2			288.0	8.5	21.
10	457.0	5751.	13.1	.029	32.6	.0030	-41.6			289.7	9.9	15.
11	437.0	6053.	12.2	.028	30.6	.0035	-43.2			291.3	11.0	16.
12	415.0	6400.	14.5	.035	36.6	.0040	-44.6			293.8	13.4	17.
13	397.0	6696.	15.0	.038	38.1	.0045	-46.2			295.6	13.8	11.
14	380.0	6986.	15.9	.042	40.7	.0050	-47.7			297.2	15.1	11.
15	361.0	7323.	19.5	.054	50.3	.0057	-49.7			299.0	15.4	10.
16	345.0	7619.	21.5	.062	55.9	.0064	-50.7			301.5	13.8	7.
17	330.0	7908.	30.1	.091	78.3	.0072	-51.1			304.7	13.1	8.
18	316.0	8190.	38.8	.123	100.9	.0083	-51.1			308.5	14.7	13.
19	300.0	8528.	47.2	.157	122.9	.0100	-51.1			313.2	14.6	13.
20	286.0	8840.	55.4	.194	143.1	.0118	-49.7			319.6	12.6	7.
21	271.0	9194.	63.2	.233	162.4	.0143	-48.3			326.5	11.3	7.
22	259.0	9493.	64.5	.249	164.5	.0165	-47.0			332.7	8.6	14.
23	245.0	9861.	66.1	.270	168.1	.0193	-46.3			339.0	9.0	23.
24	233.0	10196.	69.6	.299	176.3	.0220	-45.2			345.7	8.5	22.
25	222.0	10520.	67.3	.303	169.6	.0246	-43.9			352.4	6.6	13.
26	210.0	10893.	66.3	.316	166.8	.0275	-43.5			358.7	8.1	17.
27	198.0	11289.	68.1	.344	170.8	.0306	-42.9			365.7	6.5	25.
28	189.6	11582.	63.3	.334	158.3	.0329	-42.3			371.3	5.5	22.
29	181.0	11897.	60.4	.334	150.7	.0352	-41.6			377.4	7.9	12.
30	172.3	12231.	59.8	.347	149.1	.0375	-41.4			383.0	8.5	10.
31	163.4	12592.	63.8	.390	158.4	.0400	-40.5			390.4	8.1	15.
32	154.9	12956.	75.0	.484	185.5	.0428	-39.8			397.6	6.2	21.
33	146.5	13337.	76.8	.524	190.5	.0461	-40.3			403.0	6.4	29.
34	138.5	13720.	81.1	.586	200.5	.0495	-39.8			410.5	6.3	32.
35	130.9	14106.	87.5	.669	216.1	.0532	-39.4			417.9	5.9	39.
36	125.0	14422.	95.8	.766	236.4	.0564	-39.3			423.7	6.2	54.
37	119.3	14742.	100.8	.845	248.2	.0600	-38.7			430.4	7.1	45.
38	113.8	15066.	109.2	.959	268.6	.0638	-38.5			436.7	7.6	35.
39	109.8	15312.	109.3	.995	268.7	.0669	-38.5			441.2	6.6	37.
40	105.9	15561.	110.7	1.045	271.6	.0699	-37.9			446.8	6.9	32.
41	101.6	15847.	123.9	1.220	303.2	.0737	-37.1			453.7	5.7	38.
42	97.9	16104.	128.8	1.316	315.0	.0773	-37.1			458.5	6.2	47.
43	93.7	16407.	129.2	1.379	316.5	.0817	-37.5			463.5	6.5	37.
44	90.3	16663.	119.9	1.328	292.3	.0854	-36.3			470.8	5.7	33.
45	87.0	16921.	133.7	1.537	325.1	.0890	-35.8			476.9	4.1	32.
46	83.8	17182.	141.2	1.686	343.3	.0930	-35.7			482.3	3.0	75.
47	80.6	17452.	143.7	1.783	350.2	.0973	-36.2			486.6	4.8	93.
48	77.7	17707.	122.0	1.570	296.9	.1013	-35.9			492.3	5.8	81.
49	74.7	17981.	141.1	1.888	342.6	.1052	-35.5			498.7	6.8	75.

STATION: SOUTH POLE			LAUNCH DATE: 28 DEC 89			351 Z	ECC	SONDE: 4A4052				
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
50	71.7	18266.	157.9	2.202	382.8	.1099	-35.0			505.7	6.6	78.
51	69.1	18524.	160.9	2.329	389.3	.1145	-34.5			512.2	7.0	76.
52	66.5	18792.	159.1	2.393	384.6	.1193	-34.3			518.1	5.8	65.
53	64.0	19061.	158.8	2.481	383.1	.1240	-33.9			524.7	4.5	75.
54	61.5	19340.	158.7	2.580	382.7	.1290	-33.8			531.0	5.7	91.
55	58.9	19643.	158.6	2.692	383.0	.1343	-34.1			537.0	5.4	83.
56	56.7	19909.	155.6	2.745	375.0	.1390	-33.5			544.1	5.1	75.
57	54.5	20187.	147.7	2.711	356.7	.1438	-34.1			549.0	5.3	69.
58	52.1	20502.	143.8	2.760	347.1	.1490	-34.1			556.1	6.3	71.
59	50.1	20776.	157.7	3.148	380.9	.1535	-34.1			562.4	7.3	73.
60	48.0	21076.	151.4	3.154	365.3	.1587	-33.8			569.9	5.1	74.
61	46.1	21360.	147.4	3.197	354.3	.1635	-33.0			578.5	3.7	89.
62	44.2	21656.	155.2	3.511	372.2	.1684	-32.5			586.7	4.5	83.
63	42.4	21949.	152.4	3.595	366.0	.1734	-32.7			593.1	5.3	81.
64	40.7	22237.	138.6	3.406	332.9	.1782	-32.7			600.1	5.2	90.
65	38.9	22556.	135.3	3.479	324.9	.1831	-32.7			607.9	4.0	96.
66	37.4	22833.	132.9	3.553	319.4	.1872	-33.0			614.1	4.2	105.
67	35.9	23121.	130.1	3.623	312.0	.1914	-32.5			622.7	6.7	86.
68	34.4	23422.	126.9	3.690	303.8	.1958	-31.8			632.0	7.8	74.
69	32.9	23737.	119.0	3.618	284.8	.2002	-31.8			640.1	5.8	76.
70	31.5	24044.	107.5	3.412	257.6	.2041	-32.2			647.1	6.0	70.
71	30.2	24342.	107.7	3.565	257.4	.2077	-31.7			656.3	7.8	69.
72	29.0	24629.	99.0	3.414	236.3	.2110	-31.2			665.4	7.1	70.
73	27.7	24955.	101.2	3.652	240.3	.2146	-30.1			677.1	4.7	65.
74	26.6	25244.	105.7	3.973	251.0	.2179	-30.1			685.0	2.9	75.
75	25.4	25572.	97.8	3.849	232.2	.2216	-30.0			694.5	5.4	93.
76	24.4	25858.	101.3	4.154	240.2	.2247	-29.7			703.3	7.7	86.
77	23.2	26219.	103.8	4.474	245.4	.2288	-28.9			715.8	6.3	68.
78	22.2	26534.	96.2	4.332	226.7	.2323	-28.3			726.8	3.2	83.
79	21.2	26865.	89.0	4.199	209.9	.2357	-28.3			736.4	3.6	124.
80	20.3	27175.	86.4	4.256	204.5	.2387	-29.2			742.8	4.8	111.
81	19.3	27536.	79.7	4.130	189.0	.2421	-29.6			752.4	4.8	109.
82	18.4	27877.	75.8	4.122	179.5	.2451	-29.3			763.6	4.6	103.
83	17.6	28194.	71.4	4.058	169.8	.2477	-30.1			770.8	5.4	110.
84	16.8	28525.	67.3	4.005	159.6	.2503	-29.7			782.4	6.5	93.
85	16.0	28874.	68.8	4.299	162.4	.2528	-28.5			797.2	7.2	61.
86	15.1	29290.	69.7	4.618	163.9	.2560	-27.5			814.0	3.3	88.
87	14.7	29483.	67.6	4.596	158.3	.2574	-26.6			823.3	6.7	144.
88	14.0	29835.	64.3	4.591	150.8	.2600	-27.0			833.6	7.1	123.
89	13.5	30098.	60.6	4.489	141.9	.2618	-26.7			843.2	5.4	82.
90	13.0	30370.	61.4	4.720	143.7	.2636	-26.6			852.8	5.6	88.
91	12.4	30712.	57.6	4.644	134.1	.2658	-25.3			869.0	8.7	96.
92	11.7	31134.	57.7	4.930	134.1	.2684	-24.9			884.9	9.7	83.
93	11.1	31518.	57.4	5.171	133.0	.2708	-23.9			901.7	8.3	83.
94	10.5	31923.	54.5	5.189	126.5	.2733	-24.6			913.7	6.9	82.
95	10.1	32206.	53.7	5.320	124.6	.2750	-23.9			926.3	7.2	91.
96	9.8	32464.	50.3	5.154	115.9	.2764	-23.0			939.2	7.1	88.
97	9.4	32771.	51.6	5.515	118.7	.2781	-22.4			953.0	6.0	48.
98	9.0	33085.	49.7	5.545	114.3	.2798	-22.1			965.7	4.1	48.
99	8.6	33412.	48.3	5.633	110.9	.2815	-22.0			978.6	5.0	95.
100	8.2	33764.	46.4	5.678	106.6	.2833	-22.0			992.1	6.3	96.
101	7.8	34077.	45.3	5.781	103.7	.2848	-21.3			1006.9	5.0	81.
102	7.6	34316.	41.7	5.500	95.3	.2859	-20.9			1017.9	3.1	80.
103	7.3	34575.	40.1	5.477	91.6	.2871	-20.3			1030.2	2.7	128.
104	7.1	34821.	40.1	5.662	91.6	.2881	-20.6			1039.0	5.5	123.

STATION: SOUTH POLE			LAUNCH DATE: 28 DEC 89 351 Z				ECC SONDE: 4A4052					
TIME	PRESS	ALT	OZONE	OZONE	OZDEN	TOTOZ	TEMP	DEWPT	HUM	POT T	WIND	WIND
MIN	MB	GPM	NB	PPMV	GAMMA	ATMCM	C	C	%	K	M/S	DEG
105	6.8	35087.	33.9	4.960	77.4	.2892	-20.7			1049.2	8.1	110.
106	6.6	35375.	33.9	5.156	77.3	.2902	-19.9			1064.2	7.6	81.
107	6.3	35674.	34.0	5.384	77.3	.2913	-19.5			1078.3	9.1	41.
108	6.1	35974.	32.3	5.326	73.5	.2924	-19.7			1090.3	9.5	19.
109	5.8	36300.	30.6	5.273	69.9	.2935	-20.3			1101.1	7.1	22.
110	5.5	36639.	31.1	5.605	71.0	.2946	-20.6			1114.4	7.1	22.

UMKEHR LAYER AVERAGED OZONE PARTIAL PRESSURE IN NANOBARS

SFC-500MB	500-250	250-125	125-62.5	62.5-31.2	31.2-15.6	15.6-7.8	7.8-3.9
8.5	29.4	69.8	128.9	142.2	90.1	56.2	999.9

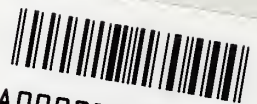
CODED SONDE DATA - WODC FORMAT

STATION: SOUTH POLE ANTARCTICA OZONE VERTICAL DISTRIBUTION INSTRUMENT: ECC

ISNNYYMMJJGG	LSXXX	XP	T	CORR	COMMENTS
1110128128904	00319	99	.941	ECC	TOTAL O3 FROM SONDE DATA 339
ISNNYYMMJJGG	PPPP	P3TTTDDDDFFFP	PPPP	P3TTTDDDDFFFP	P3TTTDDDDFFFP P3TTTDDDDFF
1110228128904	693	10-27		500	11-39 28 7 300 47-51 13 15 200 68-43 24 7
1110328128904	150	76-40 26	6	100126-37 42	6 70160-35 77 7 50157-34 73 7
1110428128904	30106-32 69	820.0	84-29110	510.0	53-24 90 7 7.0 38-21119 6
1110528128904	361	19-50 10	15	271 63-48 7	11 172 60-41 10 9 106111-38 32 7
1110628128904	94129-38 37	7	90120-36 33	6	87134-36 32 4 81144-36 93 5
1110728128904	78122-36 81	6	72158-35 78	7	59159-34 83 5 52144-34 71 6
1110828128904	46147-33 89	4	42152-33 81	5	41139-33 90 5 34127-32 74 8
1110928128904	32107-32 70	629.0	99-31 70	723.2	104-29 68 622.2 96-28 83 3
1111028128904	17.6	71-30110	5	5.5	31-21 22 7



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